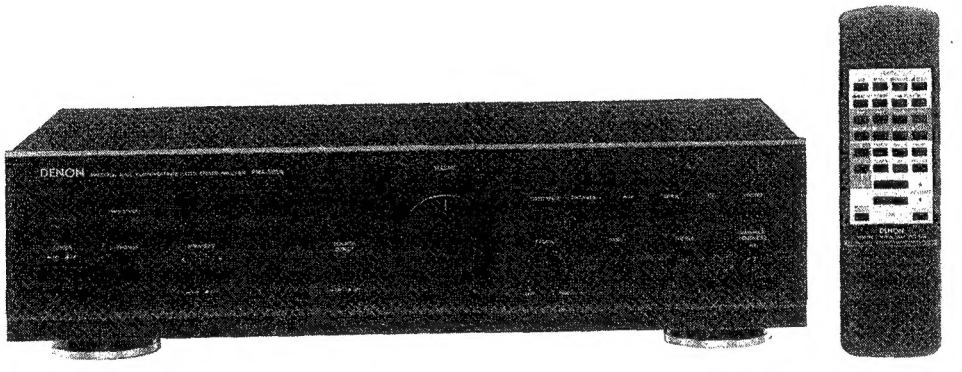
DENON

Hi-Fi Integrated Stereo Amplifier

SERVICE MANUAL

MODEL PMA-525R

INTEGRATED STEREO AMPLIFIER



CONTENTS

NIPPON COLUMBIA CO., LTD.

CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

• **FOR U.S.A. & CANADA MODEL ONLY**

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

• **POUR LE MODELE CANADIEN UNIQUEMENT**

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

• **NUR FÜR EUROPÄISCHE MODELLE**

Konformitätserklärung

Die DENON Electronic GmbH
Haiskestraße 32
40880 Ratingen

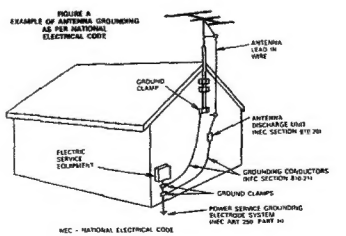
Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 868/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1989) entspricht.

SAFETY INSTRUCTIONS

1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.

6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization – Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.



12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
14. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
15. Power Lines – An outdoor antenna should be located away from power lines.
16. Outdoor Antenna Grounding – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
17. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
    A. The power-supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.
20. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

NOTE:
1. Always keep the POWER switch on the main unit turned on.
2. Turn the power on and off from the remote control unit.
3. Unplug the power cord when you do not plan to use the unit for a long period of time.

CAUTION:
If only the MUTE/STANDBY LED is lit, this means that the power is turned off from the remote contorl unit. Turn the power on from the remote control unit.

HINWEIS:
1. Lassen Sie den Netzschalter (POWER) am Hauptgerät stets eingeschaltet.
2. Schalten Sie den Strom mit dem Fernbedienungsgerät ein-und aus.
3. Trennen Sie das Netzkabel vom Netz ab, wenn Sie beabsichtigen, das Gerät über einen längeren Zeitraum hinweg nicht zu benutzen.

VORSICHT:
Wenn nur das Stummschalt-/Bereitschafts-LED (MUTE/STANDBY) leuchtet, so bedeutet dies, daß der Strom vom Fernbedienungsgerät aus ausgeschaltet worden ist. Schalten Sie den Strom vom Fernbedienungsgerät aus ein.

REMARQUE:
1. S'assurer que le commutateur d'alimentation (POWER) sur l'unité principale soit toujours dans la position activée.
2. Allumer et éteigner l'appareil avec la télécommande.
3. Débrancher le cordon d'alimentation lorsque l'appareil ne sera pas utilisé pendant une longue période.

ATTENTION:
Si seul le témoin (LED) de sourdine/veille (MUTE/STANDBY) est allumé, cela signifie que l'appareil est mis hors circuit par la télécommande. Allumer l'appareil avec la télécommande.

NOTA:
1. Tenete sempre l'interruttore della corrente (POWER) dell'unità principale nella posizione di attivazione.
2. Accendete e spegnete la corrente usando il telecomando.
3. Scollegate il filo di alimentazione quando avete intenzione di non usare l'apparecchio per un lungo periodo.

AVVERTIMENTO:
Se sono illuminati solo i LED di attenuazione/attesa (MUTE/STANDBY), questo significa che la corrente e' stata spenta con il telecomando. Riaccendete la corrente usando il telecomando.

NOTA:
1. Mantenga siempre activado el interruptor de alimentación (POWER) en la unidad principal.
2. Encienda y apague el equipo desde la unidad de control remoto.
3. Cuando la unidad vaya a estar fuera de uso por un periodo prolongado de tiempo, desconecte el cable de alimentación.

PRECAUCION:
Cuando sólo el indicador LED de silenciamiento/modo de espera (MUTE/STANDBY) esté encendido, significará que la alimentación a la unidad ha sido desconectada desde la unidad de control remoto. Conecte la alimentación desde la unidad de control remoto.

OPMERKING:
1. Zorg er altijd voor dat de stroomschakelaar (POWER) van het hoofdtoestel in de ingeschakelde stand staat.
2. Schakel de stroom in en uit m.b.v. de afstandsbediening.
3. Trek het netsnoer uit wanneer u denkt het toestel gedurende een lange periode niet te gebruiken.

WAARSCHUWING:
Indien enkel de dempings-(MUTE)/STANDBY LED brandt, betekent dit dat de spanning met de afstandsbediening is uitgeschakeld. Schakel de spanning in met de afstandsbediening.

OBSERVERA:
1. Låt alltid strömbrytaren (POWER) på huvudenheten vara påslagen.
2. Slå till/från strömmen med hjälp av fjärrkontrollen.
3. Koppla loss nätkabeln om apparaten inte skall användas under lång tid.

VARNING:
Om endast MUTE/STANDBY-lampan lyser betyder det att strömmen har stängts av via fjärrkontrollen. Strömmen måste då slås på via fjärrkontrollen igen.

NOTA:
1. Mantenha o interruptor da Corrente (POWER) na unidade principal sempre ligado.
2. Ligue e desligue a corrente a partir da unidade de controlo remoto.
3. Desconecte o fio de força quando intentar não utilizar a unidade por longo tempo.

CAUTELA:
Se apenas se iluminar o LED de surdina/espera (MUTE/STANDBY), isto significa que a força se desligou a partir do controle remoto. Ligue a força a partir do controle remoto.

PRECAUTIONS FOR INSTALLATION
Leave at least 10cm of space between this unit and any other component placed above.

SICHERHEITSMASSNAHMEN BEIM EINBAU
Lassen einen Mindestabstand von 10 cm zwischen diesem Gerät und der anderen Komponente, die daraufgestellt wird.

PRECAUTIONS D'INSTALLATION
Prévoir un espace d'au moins 10cm entre l'unité et tout autre appareil se trouvant au-dessus

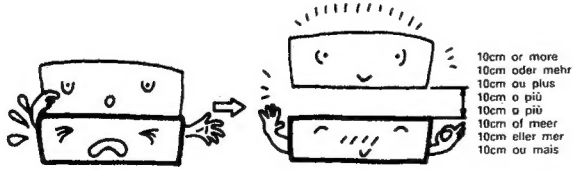
PRECAUZIONI PER L'INSTALLAZIONE
Lasciate uno spazio libero di almeno 10 cm fra quest'unità e qualsiasi altro componente che è collocato sopra la stessa

PRECAUCIONES PARA LA INSTALACION
Deje por lo menos 10 cm. de espacio entre esta unidad y cualquier otro componente situado sobre ella.

VOORZORGSMAATREGELEN
Bij plaatsing dient u een ruimte van minstens 10 cm open te laten tussen dit toestel en een ander erop geplaatst komponent.

FÖRSIKTIGHETSÅTGÄRDER VID INSTALLATIONEN
Se till att det finns minst 10 cm mellanrum mellan apparaten och en ev. annan apparat som ställs ovanpå.

CUIDADOS NA INSTALAÇÃO
Deixe um espaço de pelo menos 10 cm entre esta unidade e qualquer outro componente colocado acima.



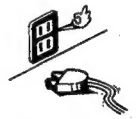
10cm or more
10cm oder mehr
10cm ou plus
10cm o più
10cm o pió
10cm of meer
10cm eller mer
10cm ou mais

NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION NOTE SULL'USO/NOTAS SOBRE EL USO/ALVORENS TE GEBRUIKEN/OBSERVERA OBSERVAÇÕES QUANTO AO USO

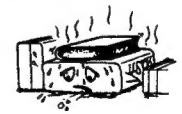
- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine ausreichend Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.
- Evite altas temperaturas
  Permite la suficiente dispersión del calor cuando está instalado en la consola.
- Vermijd hoge temperaturen.
  Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst.
- Undvik höga temperaturer.
  Se till att det finns möjlighet till god värmeavledning vid montering i ett rack
- Evite temperaturas altas
  Conceda suficiente dispersão de calor quando o equipamento for instalado numa prateleira.

- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon
- Maneggiate il filo di alimentazione con cura
  Agite per la spina quando scollegate il cavo dalla presa.
- Maneje el cordón de energía con cuidado.
  Sostenga el enchufe cuando desconecte el cordón de energía
- Hanteer het netsnoer voorzichtig
  Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld
- Hantera nätkabeln varsamt
  Håll i kabeln när den kopplas från eluttaget
- Manuseie com cuidado o fio condutor de energia.
  Segure a tomada ao desconectar o fio

- Keep the set free from moisture, water, and dust
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.
- Mantenga el equipo libre de humedad, agua y polvo
- Laat geen vochtigheid, water of stof in het apparaat binnendringen
- Utsatt inte apparaten för fukt, vatten och damm
- Mantenha o aparelho livre de qualquer umidade, água ou poeira



- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.
- Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo.
- Neem altijd het netsnoer uit het stopkontakt wanneer het apparaat gedurende een lange periode niet wordt gebruikt
- Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid.
- Desligue o fio condutor de força quando o aparelho não tiver que ser usado por um longo período



*(For sets with ventilation holes)

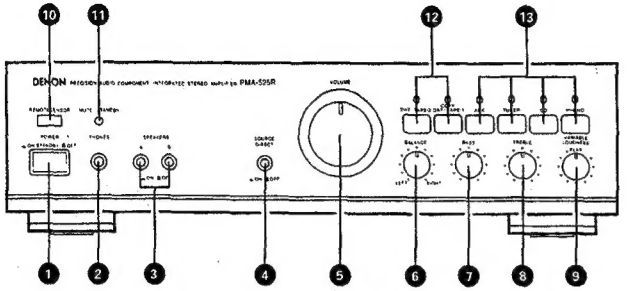
- Do not obstruct the ventilation holes
- Die Belüftungsöffnungen dürfen nicht verdeckt werden
- Ne pas obstruer les trous d'aération
- Non coprite i fori di ventilazione.
- No obstruya los orificios de ventilación
- De ventilatieopeningen mogen niet worden beblokkeerd.
- Täpp inte till ventilationsöppningarna
- Não obstrua os orifícios de ventilação

- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.
- No deje objetos extraños dentro del equipo.
- Laat geen vreemde voorwerpen in dit apparaat vallen.
- Se till att främmande föremål inte tränger in i apparaten
- Não deixe objetos estranhos no aparelho

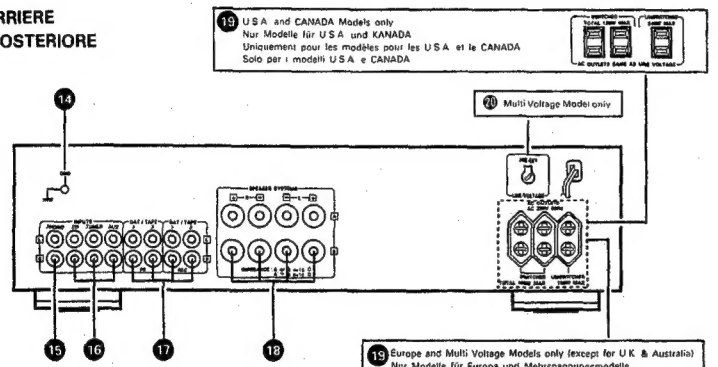
- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi
- No permita el contacto de insecticidas, gasolina y diluyentes con el equipo.
- Laat geen insektenverdelgende middelen, benzine of verfverdunner met dit apparaat in kontakt komen.
- Se till att inte insektsmedel på spraybruk, bensen och thinner kommer i kontakt med apparatens hölje.
- Não permita que inseticidas, benzina e dissolvente entrem em contacto com o aparelho.

- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, nè modificate l'unità in nessun modo
- Nunca desarme o modifique el equipo de ninguna manera.
- Nooit dit apparaat demonteren of op andere wijze modifiëren
- Ta inte isär apparaten och försök inte bygga om den.
- Nunca desmonte ou modifique o aparelho de alguma forma

FRONT PANEL
FRONTPLATTE
PANNEAU AVANT
PANNELLO ANTERIORE



REAR PANEL
RÜCKWAND
PANNEAU ARRIERE
PANNELLO POSTERIORE



19 Europe and Multi Voltage Models only (except for U.K. & Australia)
Nur Modelle für Europa und Mehrspannungsmodelle (außer Vereinigtes Königreich und Australien)
Uniquement pour les modèles pour l'Europe et les modèles multi-tension (excepté pour le Royaume-Uni et l'Australie)
Solo per i modelli Europa e per quelli a voltaggio multipla (eccetto il Regno Unito e l'Australia)

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LINE VOLTAGE (Voltage select switch) . . . For Multi-voltage model only.

- The desired voltage may be set with the VOLTAGE SELECTOR KNOB on the back panel using a screw driver.
- Do not twist the VOLTAGE SELECTOR KNOB with excessive force. It may be damaged.
- If the voltage select switch does not turn smoothly, see qualified serviceman.

Fig. 1
Abb. 1

⑭ GND	⑮ PHONO	⑯ CD, TUNER, AUX	⑰ DAT/TAPE-1, DAT/TAPE-2 • TAPE PB • TAPE REC	⑱ SPEAKERS
GND	Phono Input Terminals (Phono)	Input Terminals (CD, TUNER, AUX)	Playback and Recording Terminals • Playback Terminals • Recording Terminals	Speaker Terminals
GND	Schallplattenspieler-Eingangsbuchsen (Phono)	Eingangsbuchsen (CD, TUNER, AUX)	Tonband-Ein/Ausgänge • Wiedergabe • Aufnahme	Lautsprecher-klemmen
GND	Bornes d'entrée (phono)	Bornes d'entrée (CD, TUNER, AUX)	Bornes de lecture et d'enregistrement • Bornes de lecture • Bornes d'enregistrement	Bornes de haut-parleurs
GND	Terminali di ingresso Phono	Terminali di ingresso (CD, TUNER, AUX)	Terminali di riproduzione registrazione • Terminali di riproduzione • Terminali di registrazione	Terminali degli altoparlanti

CONNECTIONS
ANSCHLÜSSE
CONNEXIONS
CONNESSIONI

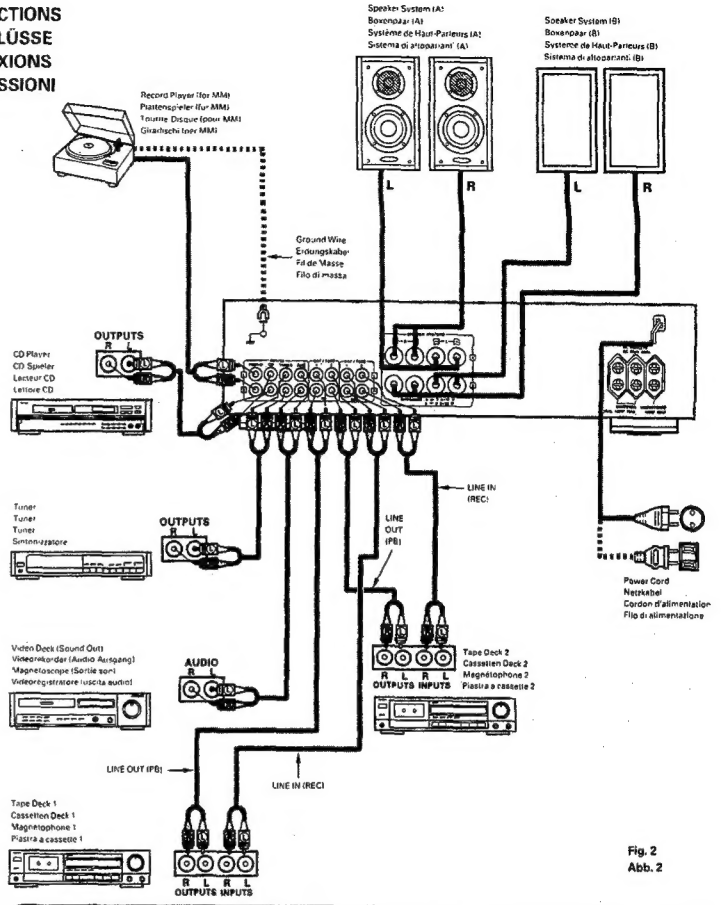


Fig. 2
Abb. 2

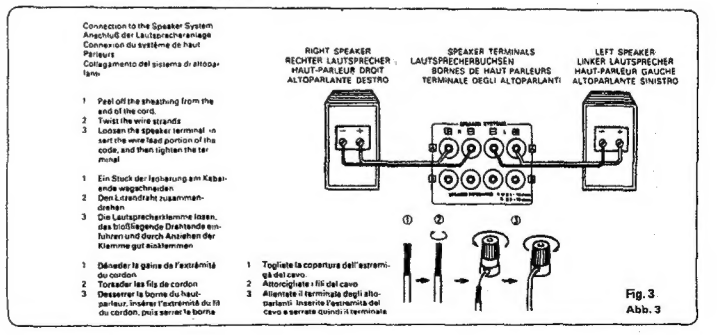


Fig. 3
Abb. 3

DESIGNATIONS AND FUNCTIONS OF PANEL CONTROLS

❶ POWER (Power Switch)
When the power switch is turned ON (▬), the MUTE/STANDBY LED ⓫ lights.
When the power switch is turned ON, power is supplied to the unit. It takes a few seconds after the power is turned on for the unit to warm up. This is due to the built-in muting circuit that eliminates noise during the on/off operation.

❷ PHONES (Headphone Jack)
This jack is used to plug in the headphones.

❸ SPEAKERS (Speaker Selection Switch)
The PMA-525R can be connected to two speaker systems: speaker system A and speaker system B.
When A is pressed, the speaker system connected to speaker output terminals A operates.
When B is pressed, the speaker system connected to speaker output terminals B operates.
When A and B are pressed on together, both speaker systems operate simultaneously. When the A and B switches are both off (in the out position), there is no output from the speaker terminals. This setting is used to listen to playback through the headphones.

❹ SOURCE DIRECT (Source Direct Switch)
The controls (BALANCE, VARIABLE LOUDNESS, and TONE) can be used when this switch is in the OFF (▬) position.
When set to the ON (▬) position, the above controls are by-passed and the signals are input directly to the volume control circuit, providing high quality sound.

❺ VOLUME (Volume Control)
This knob controls the overall volume level.
Turn the knob to the right (↷) to raise the volume and to the left (↶) to lower it.

❻ BALANCE (Balance Control)
This knob is used to adjust the balance between the left and right channels. When it is set to the center position, the amplitude of the amplifier is equal on both sides. If there is a difference in the left and right channel output voltages for a cartridge, move the knob to the left and the right to adjust it. If the volume on the right side is too low, turn the knob to the right (↷). If the volume on the left side is too low, turn the knob to the left (↶). This will achieve an even balance on the left and right sides.

❼ BASS (Bass Control)
This knob is used to control the bass quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range below 1000 Hz. The bass is emphasized as the knob is moved off center to the right (↷), and reduced as it is moved to the left (↶).

❽ TREBLE (Treble Control)
This knob is used to control the treble quality of the sound. When the knob is set at the center position, the frequency characteristics are flattened in the range above 1000 Hz. The treble is emphasized as the knob is moved off center to the right (↷), and reduced as it is moved to the left (↶).

❾ VARIABLE LOUDNESS (Loudness Control)
At low volumes, the human ear is less sensitive to low (BASS) and high (TREBLE) frequencies. Use this control to compensate for this deficiency when listening at low volume levels. Turn this control counter-clockwise until a natural balance of bass and treble sound has been restored.

❿ REMOTE SENSOR (Remote Control Sensor)
This sensor receives the infra-red light transmitted from the wireless remote control unit.
For remote control, point the wireless remote control unit towards the sensor.

⓫ MUTE/STANDBY LED
This LED flashes while the muting circuit is activated when the power is turned on and when muting is turned on from the remote control unit, and remains lit (without flashing) while the power is on. In addition, this LED flashes rapidly when the protection circuit is activated.

⓬ TAPE SELECTOR (Tape Selector/Monitor Buttons)
- COPY/DAT/TAPE-1:
  Press this button once, COPY/DAT/TAPE-1 indicator will light up and then you can play tape source on DAT/TAPE-1 terminal. In this state you can copy COPY/DAT/TAPE-1 source to DAT/TAPE-2 terminal. Press again the button currently accessed, to play sources selected by input selector ⓭, indicator goes out.
- DAT/TAPE-2:
  Press this button once, DAT/TAPE-2 indicator will light up and then you can play tape or video source of DAT/TAPE-2 terminal. Press again the button currently accessed, to play sources selected by input selector ⓭, indicator goes out.

⓭ INPUT SELECTOR (Input Select Switch)
Use these to select the program source.
When the switch for the desired program source is selected, its LED lights. One program source only can be selected at a time, as follows:
- PHONO: Use this position when using the record player connected to the PHONO jacks. The record player should have an "MM" cartridge.
- CD: Use this position when using the CD player, etc., connected to the CD jacks.
- TUNER: Use this position when using the tuner, etc., connected to the TUNER jacks.
- AUX: Use this position when using the component connected to the AUX jacks.

⓮ AC OUTLETS: Rear Panel Side
- **For U.S.A., Canada and Multi-voltage models.**
  AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.
  - SWITCHED (Total capacity: 120 W):
    These outlets are turned ON/OFF when main power switch and POWER button on the Remote Control Unit is turned on/off.
  - UNSWITCHED (Capacity: 240 W)
    This outlet is always ON whether power switch is on or OFF.
- **For Europe model, except the U.K. and Australia models.**
  AC outlets are used for connecting amplifier component units, such as tuner, turntable, tape deck, etc.
  - SWITCHED (Total capacity: 100 W):
    These outlets are turned ON/OFF when main power switch and POWER button on the Remote Control Unit is turned on/off.
  - UNSWITCHED (Capacity: 100 W)
    This outlet is always ON whether power switch is on or OFF.

OPERATION

PREPARATION

1. CHECKING CONNECTIONS
   - Make sure that all the connections are proper by referring to the back panel. (Fig. 2~3)
   - Check the polarity (positive and negative) of connections, and the directivity of stereo separation (right cord to right channel terminal, and left cord to left channel terminal).
   - Check the directivity of pin cord connection.

2. SETTING OF EACH KNOB
   - Turn the volume control knob ❺ counterclockwise, to left.
   - Set the rotary knob to "flat" or "center position".
   - Set SOURCE DIRECT ❹ to "OFF (▬)".
   - Press the TAPE MONITOR switch ⓬ to turn the LED off.
   - Turn on the speaker selection switch for desired speaker system (A or B).

After checking the above items, turn on the power, the amplifier is set in the ready mode in a few seconds.

PLAYING A RECORD

1. Set the INPUT SELECTOR switch ⓭ to "PHONO".
2. Operate the turntable and play the record.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

PLAYBACK OF CD PLAYER

1. Set the INPUT SELECTOR switch ⓭ to "CD".
2. Operate the CD player.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

RECEPTION OF RADIO PROGRAMS

1. Set the INPUT SELECTOR switch ⓭ to "TUNER".
2. Operate the tuner to receive a radio program.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

CONNECTIONS OF AUDIO EQUIPMENT TO AUX TERMINALS

1. Set the INPUT SELECTOR switch ⓭ to "AUX" Position.
2. Operate the Audio equipment Systems.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

PLAYBACK WITH TAPE DECK

1. Set the TAPE MONITOR switch ⓬ to "COPY/DAT/TAPE-1" or "DAT/TAPE-2".
2. Operate the Tape Deck.
3. Turn the volume and tone controls to yield an appropriate volume and sound quality.

RECORDING WITH TAPE DECK

The source to be recorded is selected by the INPUT SELECTOR switch ⓭.

COPYING FROM ONE TAPE TO ANOTHER

To copy from COPY/DAT/TAPE-1 to DAT/TAPE-2, press the COPY/DAT/TAPE-1 switch ⓬.

> **NOTE:**
> Copying is not possible from DAT/TAPE-2 to COPY/DAT/TAPE-1.

MONITORING THE RECORDING

(If a 3-head tape deck is used, the sound being recorded can be monitored during the recording.)
Use the TAPE MONITOR switches ⓬ to select the tape deck onto which the sound is being recorded.
The LED for the selected tape deck lights.

CAUTION

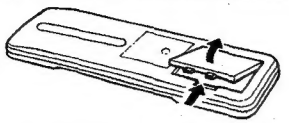
> ***Protective Circuit***
> This set is equipped with a high speed protective circuit. This circuit protects the internal circuitry from damage due to large currents flowing when the speaker jacks are not completely connected or when an output is generated by a short circuit. This protective circuit's operation cuts off the output to the speakers. In such a case, be sure to turn the power to the set off and check the connections to the speakers. Then turn the power on again. After muting for a few seconds, the set will operate normally.

REMOTE CONTROL OPERATION

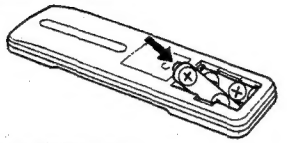
The accessory Remote Control Unit is used to control the amplifier from a convenient distance.

(1) Inserting the Dry Cell Batteries

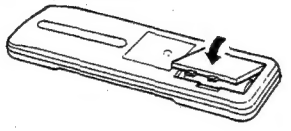
1. Remove the battery cover on the Remote Control Unit.



2. Insert two dry cell batteries as shown in the diagram on the battery supply unit.



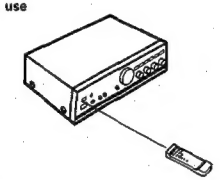
3. Replace the battery cover.



Notes on Battery Usage

- RC-176 uses the size R6P (AA) dry cell batteries.
- The batteries will need to be replaced approximately once a year. This will depend upon how often the Remote Control Unit is used.
- If, in less than a year from the time new batteries were inserted, the Remote Control Unit fails to operate the Amplifier from a near-by position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment.
- Batteries are prone to damage and leakage. Therefore:
  - Do not mix new batteries with used ones.
  - Do not mix different types of batteries.
  - Do not jumper opposite poles of the batteries, expose them to heat, break them open, nor expose them to open fire.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment wiping thoroughly with a dry cloth. Then insert new batteries.

(2) Directions for use



- Operate the Remote Control Unit while pointing it towards the Remote Control Sensor on the Amplifier as shown in the diagram on the left.
- The Remote Control Unit can be used at distances up to about 8 meters in a straight line from the amplifier. This distance will decrease if there are obstructions blocking the infra-red light transmission or if the Remote Control Unit is not directed straight at the amplifier.

Note on operation

- Do not press the operating buttons on the Amplifier and the Remote Control Unit at the same time. This will cause misoperation.
- Operation of the Remote Control Unit will become less effective or erratic if the infrared Remote Control Sensor on the Amplifier is exposed to strong light or if there are obstructions between the Remote Control Unit and the sensor.
- In case you operate a VCR, TV or other components by remote control, do not operate buttons on two different remote control units at the same time. This will cause misoperation.

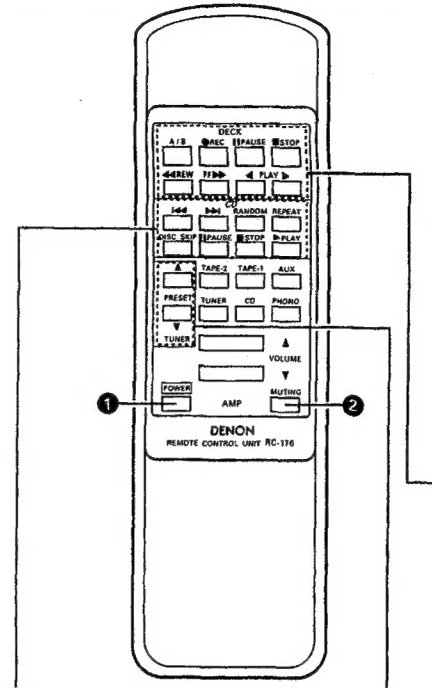
Besides being able to operate the PMA-525R amplifier with this Remote Control Unit, you can also operate a DENON cassette deck and CD player from this handy full-system Remote Control Unit.

Remote control section

Full-system Remote Control Unit

The full-system Remote Control Unit operates all major functions of the Amplifier, such as function switching, volume control. But that's not all! The same control pad can also control the major functions of a DENON CD player and cassette deck and tuner when combined with the PMA-525R to create a remarkably ergonomic and versatile DENON system with all the quality sound reproduction that the devoted audiophile expects.

Remote Control Unit RC-176 supplied with the PMA-525R



❶ POWER button

This button can be used to turn on and off the power of the amplifier.

However, the power for the amplifier turned on and off if it is in the power standby mode and the power cord is plugged in.

> This button will not function if there is a power failure, if the power cord is not plugged in, or when using an audio timer.

❷ MUTING button

Pressing this switch will activate the muting condition and no signals will be output to the speakers.

Other buttons

Other buttons are exclusively for the PMA-525R, and function in the same way as the corresponding buttons on the set.

DECK

▶ PLAY	PLAY button
◀ PLAY (REV)	PLAY (REV) button
■ STOP	STOP button
◀◀ REW	REWIND button
FF ▶▶	FF button
● REC	Refer to the operating instructions of your DENON tape deck.
❚❚ PAUSE	
A/B W-DECK	A/B DECK SELECT button

CD

▶ PLAY	PLAY button
■ STOP	STOP button
⏮	Reverse Track Search button
⏭	Forward Track Search button
RANDOM	Refer to the operating instructions of your DENON CD player
REPEAT	
DISC SKIP	
❚❚ PAUSE	PAUSE button

TUNER

PRESET ⇕ buttons

Press this button to move up or down among the preset station numbers.

- The RC-176 Remote Control Unit can control CD players and cassette decks manufactured by DENON.
- Note that operation may not be possible for some models.
- Buttons are conveniently separated into groups, each group controlling one specific component. The groups are AMP, FUNCTION, CD, DECK and TUNER etc..

For details on operating other components, refer to the operating instructions for the CD player and/or cassette deck.

CAUTION:

- If the power is turned off with the Remote Control Unit, the set is switched to the power stand-by state. If you are absent for a long period of time, unplug the power cord.
- Only the MUTE/STANDBY LED ❶ lights when in the power stand-by mode.
- You may experience erratic operation of the Remote Control Unit if it is operated in fluorescent light and direct sunlight, in particular if this light strikes the Remote Control Sensor on the Amplifier. However, this is not a malfunction, and if this should happen, simply protect the sensor against such light.

Technical Data (typical value)	Technische Daten (typische werte)	Caractéristiques techniques (valeur caractéristique)	
• POWER AMPLIFIER SECTION	• LEISTUNGSENDS VERSTÄRKER	• PARTIE AMPLIFICATEUR DEPUISSANCE	
Rated Output Power:	Nenn-Ausgangsleistung:	Puissance nominale:	
*1Both channel driven (8 Ω/ohms Load) 20 Hz to 20 kHz, T.H.D. 0.08% (4 Ω/ohms Load) DIN, 1 kHz, T.H.D. 0.7%	*1Beide Kanäle betroebem (an 8 Ω/Ohm) 20 Hz bis 20 kHz, T.H.D. 0,08% (an 4 Ω/Ohm) DIN, 1 kHz, T H.D. 0,7%	*1Entraînement deux canaux (charge 8 Ω/ohms) 20 Hz à 20 Hz, D.H.T. 0,08% (charge 4 Ω/ohms) DIN, 1 kHz, D.H.T 0,7%	52W + 52W 85W + 85W
*2Continuous 52W per channel min into 8 Ω/ohms from 20 Hz to 20 kHz with no more than 0.08% total harmonic distortion	*2Fortlaufend 52W pro Kanal min. zu 8 Ω/Ohm von 20 Hz bis 20 kHz mit einem Gesamtklirrfaktor von nicht mehr als 0,08%.	*252W en continu par canal sur min. 8 Ω/ohms de 20 Hz à 20 kHz avec une distorsion harmonique totale de 0,08% ou moins.	52W
Total Harmonic Distortion: (–3 dB at rated output, 8 Ω/ohms)	Gesamtklirrfaktor: (–3 dB bei Nennausgang, 8 Ω/Ohm)	Distorsion harmonique totale: (–3 dB à la sortie nominale, 8 Ω/ohms)	0.02%
• PRE AMPLIFIER SECTION	• VORVERSTÄRKER	• PRE-AMPLI	
Rated Output: (Recout Terminal)	Nenn-Ausgangsleistung: (Aufnahme-Ausgangsbuchse)	Puissance nominale: (Borne de sortie d'enregistrement)	150 mV
Input Sensitivity/ Input Impedance: The value in parentheses ( ) refers to the input impedance when SOURCE DIRECT is ON.	Eingangsempfindlichkeit/ Eingangsimpedanz: Der in Klammern ( ) angegebene Wert bezieht sich auf die Eingangsimpedanz, wenn der Quellen-Direktschalter (SOURCE DIRECT) eingeschaltet (ON) ist	Sensibilité d'entrée/ impédance d'entrée: La valeur entre parenthèses ( ) se rapporte à l'impédance d'entrée lorsque la touche de source directe (SOURCE DIRECT) est sur la position sous tension (ON)	
PHONO:	PHONO:	PHONO:	2.5 mV/47 kΩ/kohms
CD, TUNER AUX TAPE-1, TAPE-2:	CD, TUNER, AUX TAPE-1, TAPE-2:	CD, TUNER, AUX TAPE-1, TAPE-2:	150 mV/30 kΩ/kohms (150 mV/25 kΩ/kohms)
RIAA Deviation: PHONO: Within ±0.5 dB	Abweichung von der RIAA-Kennlinie: PHONO: Innerhalb ±0,5 dB	Variation RIAA: PHONO: Inf. à ±0,5 dB	
Maximum Input:	Maximaler Eingang:	Entrée max.:	20 Hz ~ 20 kHz PHONO 160 mV/1 kHz
• OVERALL CHARACTERISTICS	• GESAMTEIGENSCHAFTEN	• CARACTERISTIQUES GENERALES	
SN Ratio (IHF A Network):	Signal/Rauschabstand (IHF-A-Weiche):	Rapport signal/bruit (réseau IHF A):	PHONO: MM: 86 dB (at 5 mV input)
(input terminals short-circuited) SOURCE-DIRECT: ON	(Eingänge kurzgeschlossen) SOURCE DIRECT: ON	(Bornes d'entrée court-circuitées) SOURCE DIRECT: ON	CD, TUNER, AUX TAPE-1, TAPE-2: 107 dB
Tone Control Adjustable Range:	Klangregelbereich:	Gamme de réglage de tonalité:	
BASS	TIEFEN (BASS)	GRAVES	100 Hz ±8 dB
TREBLE	HÖHEN (TREBLE)	AIGUS	10 kHz ±8 dB
Variable Loudness:	Physiologischer Lautstärkeregler:	Commande de compensation physiologique:	50 Hz +10 dB 10 kHz +5 dB
• OTHERS	• SONSTIGES	• AUTRES	
Power Supply	Netzspannung und- frequenz	Alimentation	AC 230V/50 Hz (For Europe and Australia) AC 120V/60 Hz (For U.S.A. and Canada) AC 110/220/230V, 50/60 Hz (For Multiple)
AC Outlets Switched×2:	Wechselstrom-Ausgänge Geschaltet×2:	Prises secteur (AC) Commutées×2:	100W (Total) (For Europe and Multi voltage models, except the U.K. model) 120W (Total) (For U S.A. and Canada models)
Unswitched×1:	Ungeschaltet×1:	Non commutées×1:	100W (For Europe and Multi Voltage models, except the U.K. model) 240W (For U.S.A. and Canada models)
Power Consumption	Leistungsaufnahme	Consommation	185W (IEC) 3.0A (U.S.A , and Canada models)
Dimensions (W)×(H)×(D)	Abmessungen (B)×(H)×(T)	Dimensions (L)×(H)×(D)	434(W)×120(H)×282(D)mm (17-3/32"×4-22/32×11-3/32")
Net Weight	Nettogewicht	Poids	6.2 kg (13 lbs 11 oz)
REMOTE CONTROL UNIT (RC-176)	FERNBEDIENUNGSGERÄT (RC-176)	UNITE DE TELECOMMANDE (RC-176)	
Remote control system: Infrared pulse system	Fernbedienungs-System: Infrarot-Impulse	Système de télécommande: Système à impulsion infrarouge	
Power supply: 3V DC, Two size R6P ("AA") dry cell batteries	Stromversorgung: 3V Gleichstrom, zwei Trockenzelle-Batterien vom format R6 (AA)	Alimentation: 3V CC, deux piles sèches de format R6P ("AA")	
External dimensions:	Äußere Abmessungen:	Dimensions extérieures:	55(W)×194(H)×18(D)mm (2-11/64"×7-41/64"×45/64")
Weight:	Gewicht:	Poids:	100 g (about 3.5 oz) (including batteries)

Note: *1 For Europe and Multi-Voltage *2 For U S A. and Canada

Hinweis: *1 Für Europa und Mehrspannung *2 Für die USA und Kanada

Note: *1 Pour les modèles pour l'Europe et multi-tension *2 Pour les U S A. et le Canada

- Specifications and contents are subject to change without notice for purposes of improvement.
- Änderungen des Inhalts und der technischen Daten zum Zwecke der Verbesserung vorbehalten.
- Spécifications et contenu sont sujets à modification sans préavis.

ENGLISH

Please check to make sure the following items are includad with the main unit in the carton:

(1) Operating Instructions 1
(2) Remote Control Unit (RC-176) 1
(3) Batteries R6P (AA) 2

DEUTSCH

Bitte überprüfen Sie, ob die folgenden Teile vollständig in der Verpackung enthalten sind:

(1) Bedienungsanleitung 1
(2) Fernbedienung (RC-176) 1
(3) Batterien vom Typ R6P (AA) 2

FRANCAIS

Veuillez contrôler que les articles suivants sont bien joints à l'appareil principal dans le carton:

(1) Mode d'emploi 1
(2) Unité de télécommande (RC-176) 1
(3) Piles R6P (AA) 2

ITALIANO

Controllare che le parti seguenti si trovino imballate con l'apparecchio nella scatola di spediziione.

(1) Libretto delle istruzioni 1
(2) Telecomando (RC-176) 1
(3) Batterie R6P (AA) 2

ESPAÑOL

Por favor verifique asegurandose de que los siguientes articulos son empacados en la caja pero separados de la unidad principal.

(1) Manual de instrucciones 1
(2) Unidad de control remoto (RC-176) 1
(3) Pilas R6P (AA) 2

NEDERLANDS

Kontroleer of de volgende accessoires bij het hoofdtoestel in de doos zijn verpakt:

(1) Gebruiksaanwijzing 1
(2) Afstandsbediening (RC-176) 1
(3) Batterijen R6P (AA) 2

SVENSKA

Kontrollera att följande, förutom huvudapparaten, finns med i kartongen.

(1) Bruksanvisning 1
(2) Fjärrkontroll (RC-176) 1
(3) Batterier R6P (AA) 2

PORTUGUÊS

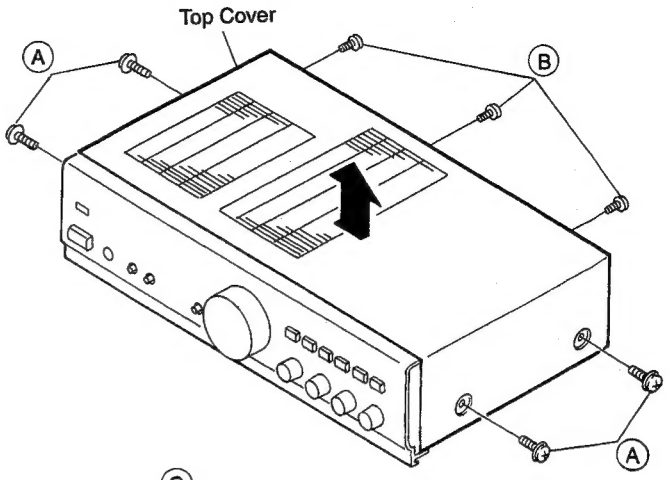
Certifique-se de que as seguintes peças estão incluidas na embalagem fora da unidade principal:

(1) Instruções de operação 1
(2) Unidade de controle remoto (RC-176) 1
(3) Baterias R6P (AA) 2

REMOVAL OF EACH SECTION

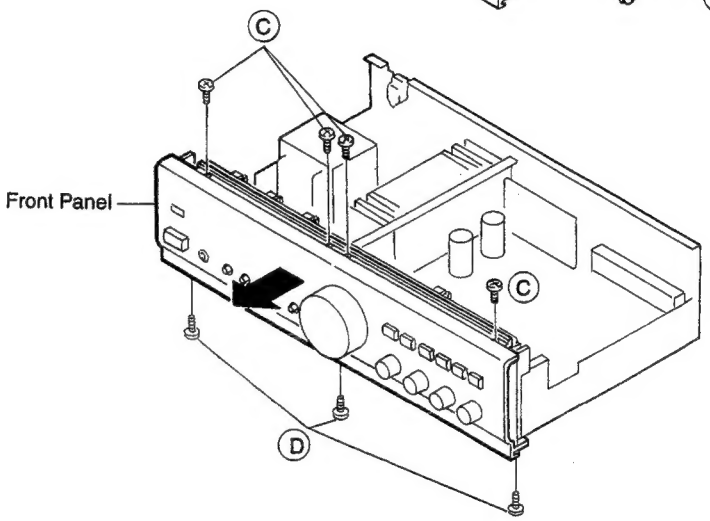
● **Top Cover**

1) Remove 4 screws (A) and 3 screws (B) .
2) Pull up Top Cover in arrow direction.



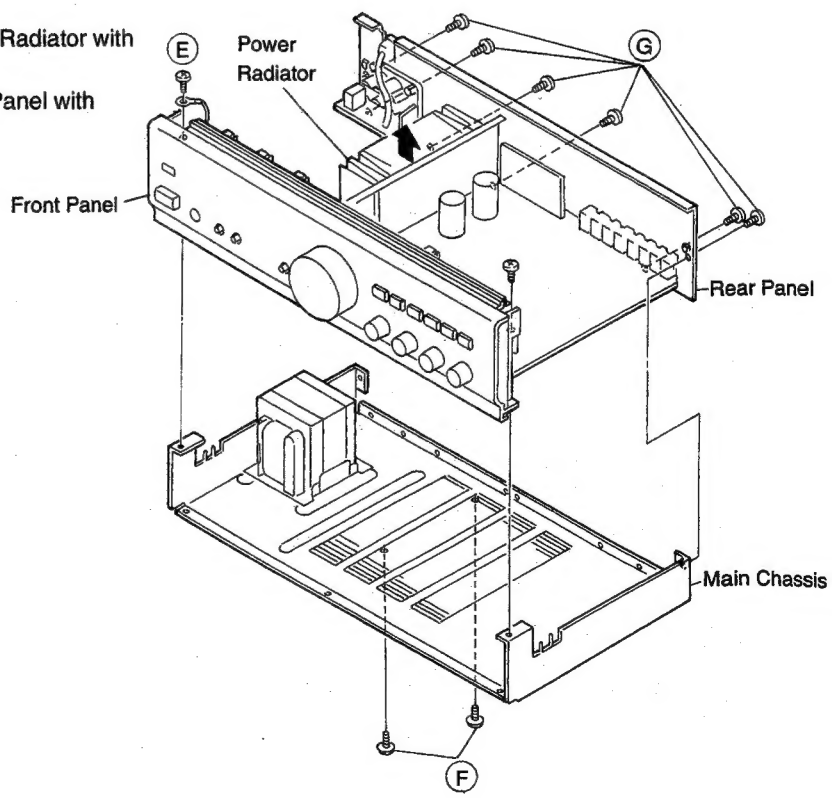
● **Front Panel**

1) Remove 4 screws (C) .
2) Remove 3 screws (D) .
3) Detach Front Panel in arrow direction.



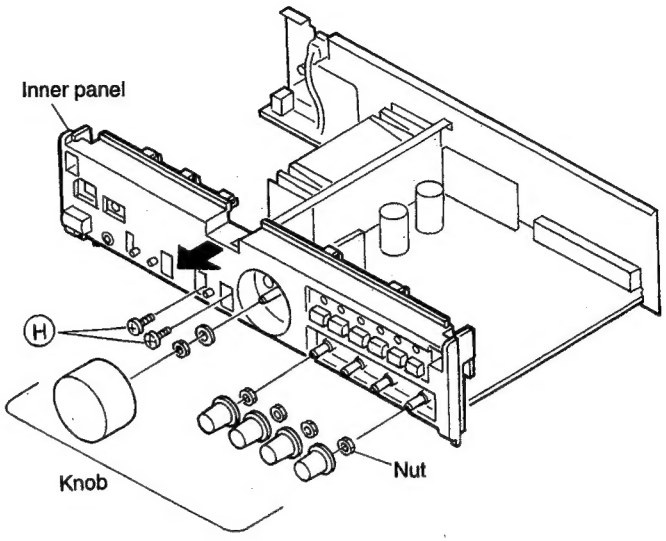
● **Main Chassis**

1) Remove 2 screws (E) .
2) Remove 2 screws (F) securing Power Radiator with Main Chassis.
3) Remove 6 screws (G) securing Rear Panel with Main Chassis.



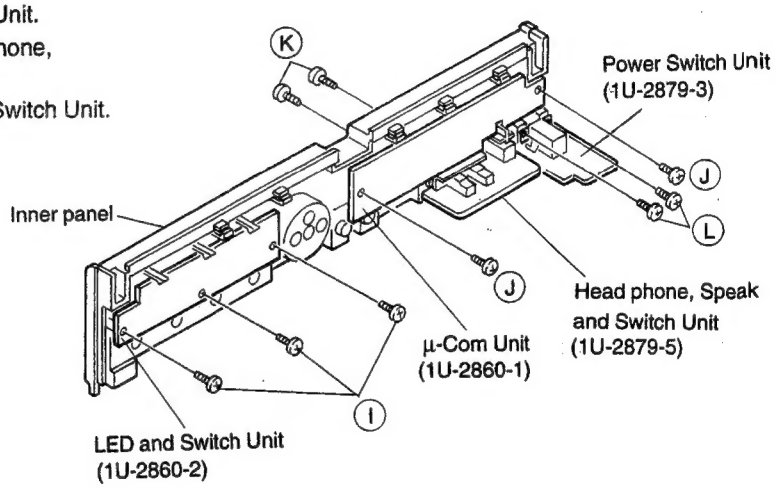
● Inner Panel

1) Remove 5 Knobs and 5 nuts.
2) Remove 2 screws (H) , and detach Inner Panel in arrow direction.

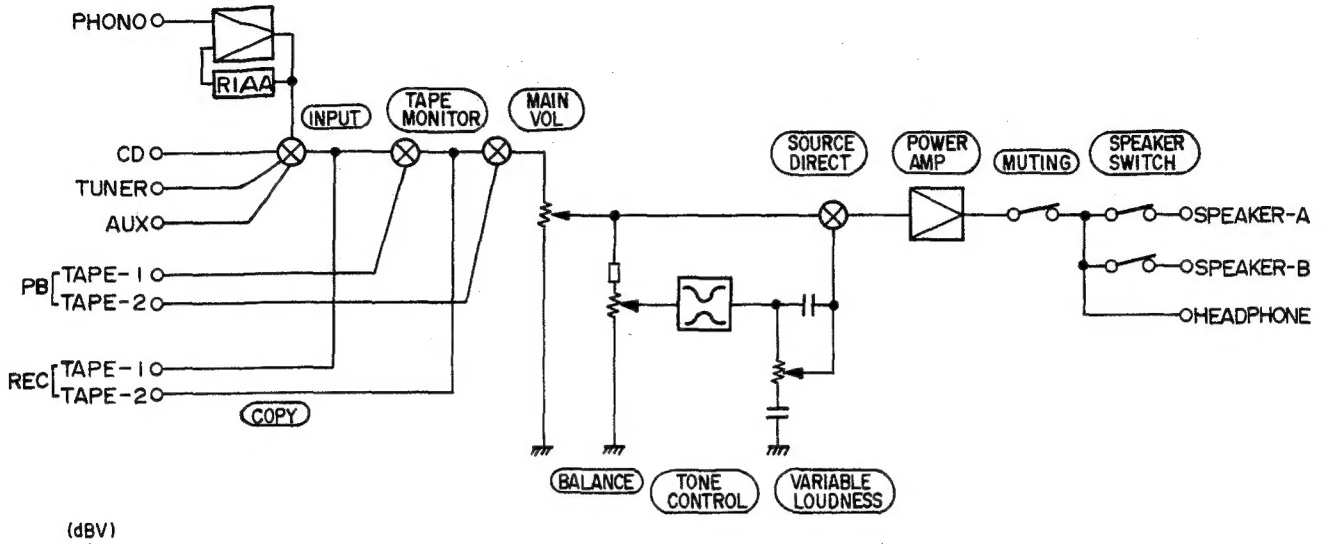


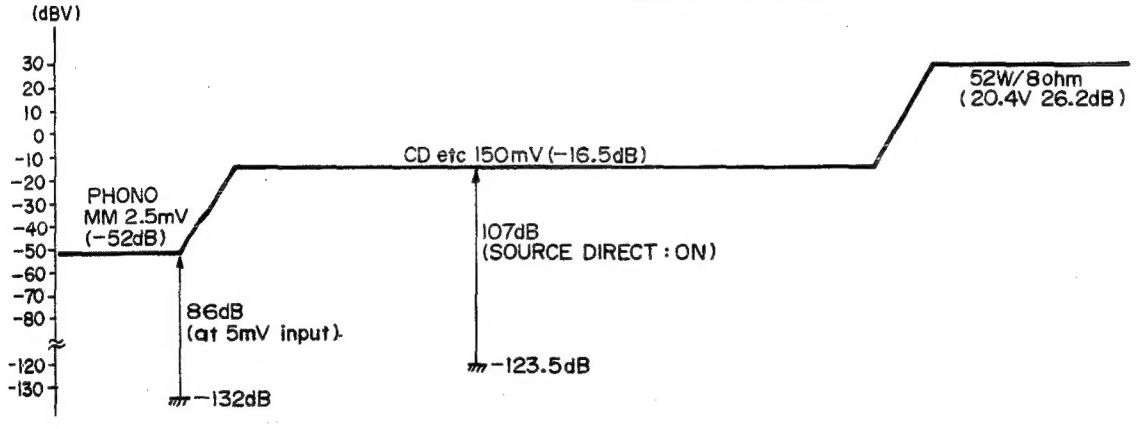
● Each Unit of Inner Panel

1) Remove 3 screws (I) , and detach LED and Switch Unit.
2) Remove 2 screws (J) , and detach μ-Com Unit.
3) Remove 2 screws (K) , and detach Head phone, SP Switch Unit.
4) Remove 2 screws (L) , and detach Power Switch Unit.

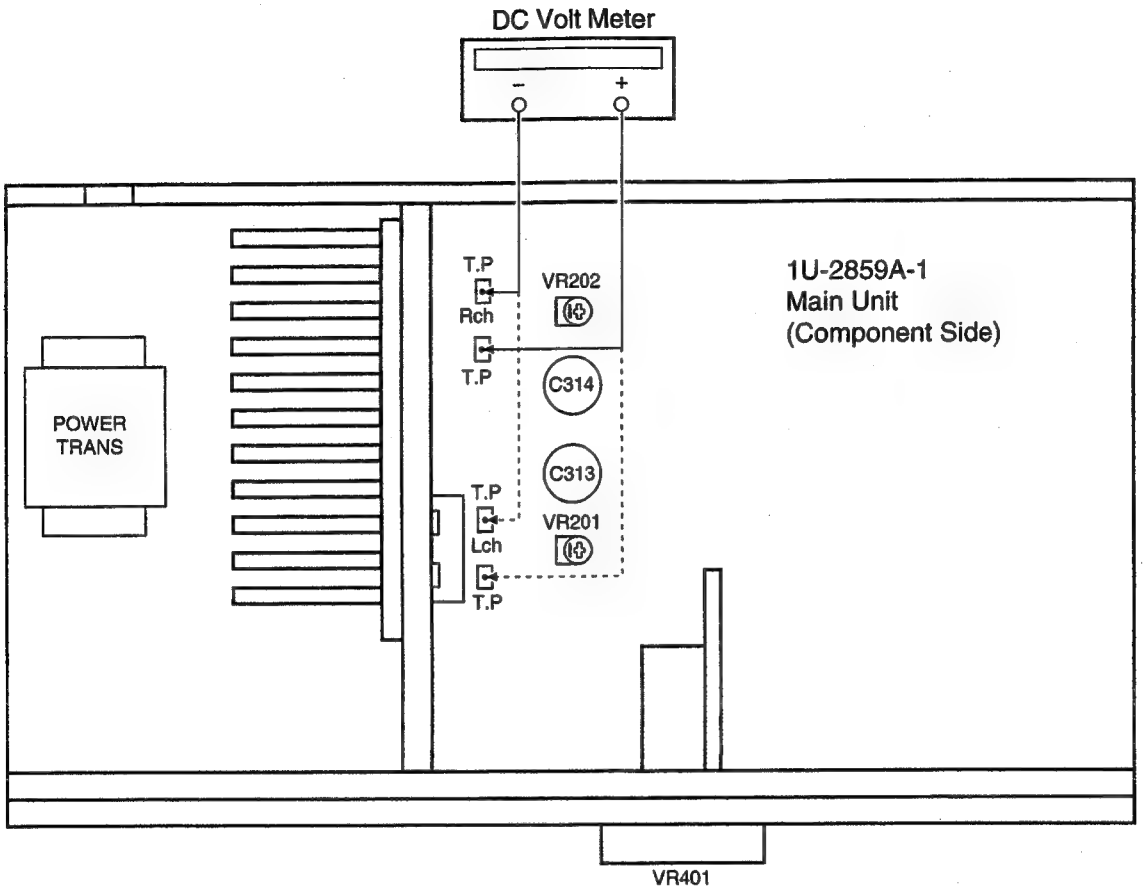


BLOCK AND LEVEL DIAGRAM





METHOD OF ADJUSTMENTS



IDLING CURRENT

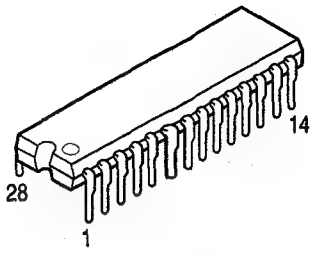
- Setup
  1. Lay the unit at an ordinary position away from a direct current from a cooler or fan. Do the adjustment at a temperature between 15°C (59°F) and 30°C (86°F).
  2. Set controls as follows.
     POWER SWITCH→ OFF (■)
     VOLUME CONTROL→ fully counterclockwise. (↺) min. [Main volume (VR401) and Semifixed resistors]
     (VR201...Lch, VR202...Rch)
     SPEAKER Terminals→ open: do not connect the speakers, dummy load etc.

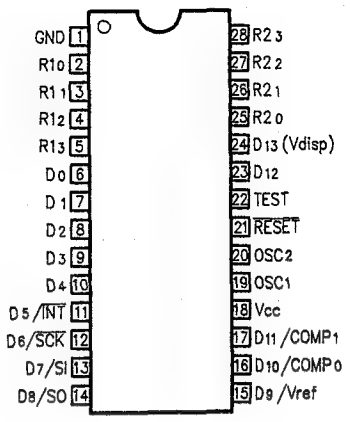
- Adjustment
  1. Remove Top cover. And then connect DC Voltmeter to Test points of 1U-2859A1 (Main Unit).
  2. Connect Power cord to AC wall outlet, and turn Power Switch "on" (▬) . Within 10 seconds turn VR201 (Lch) and VR202 (Rch) clockwise so that DC voltmeter reads 17 ± 3mV DC.
  3. Then after 2 minutes warm up adjust VR201 and VR202 so that the DC Voltmeter reads 17 ± 3mV DC.
  4. And after 10 minutes warm up adjust VR201 and VR202 so that the DC Voltmeter reads 11 ± 3mV DC.

SEMICONDUCTORS

● IC's

HD404222 (IC101)





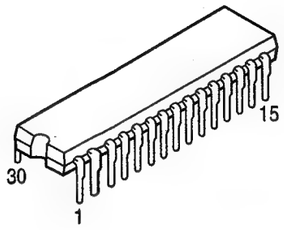
HD404222 Terminal Function

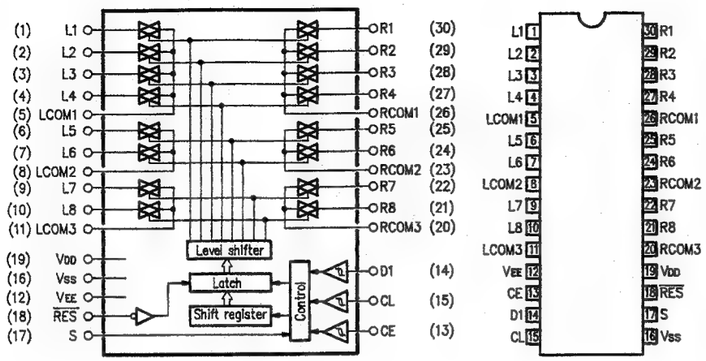
Pin No.	Symbol	Typ	Opt	I/O	Res	Ini	Act	Det	Function
1	GND	—	—	—	—	—	—	—	Ground.
2	PHONO	B	IU	O	HZ	H	L	—	LED drive output for function indication.
3	CD	B	IU	O	HZ	H	L	—	LED drive output for function indication.
4	TUNER	B	IU	O	HZ	H	L	—	LED drive output for function indication.
5	AUX	B	IU	O	HZ	H	L	—	LED drive output for function indication.
6	VOLUME UP	B	IU	O	HZ	L	H	—	Volume drive output.
7	VOLUME DOWN	B	IU	O	HZ	L	H	—	Volume drive output.
8	NC	B	IU	I	HZ	L	—	—	Connect to ground.
9	B-DOWN	B	IU	I	HZ	H	L	Lv	Power supply stop detection input.
10	PROTECTION	B	IU	I	HZ	H	L	Lv	Protecting detection input.
11	REMOCON	B	IU	I	HZ	H	L	Ed	Remote control signal input.
12	CK	B	IU	O	HZ	L	H	—	Analog function switch control output (clock).
13	ST	B	IU	O	HZ	L	H	—	Analog function switch control output (chip select).
14	DATA	B	IU	O	HZ	L	H	—	Analog function switch control output (data).
15	V_{REF}	—	—	—	—	—	—	—	Reference voltage input for comparator.
16	KEY IN	B	IU	I	HZ	—	—	Alg	Button signal input (analog).
17	NC	B	IU	I	HZ	L	—	—	Connect to ground.
18	V_{CC}	—	—	—	—	—	—	—	Power supply.
19	OSC_1	—	—	I	—	—	—	—	Xtal input.
20	OSC_2	—	—	O	—	—	—	—	Xtal output.
21	$\overline{RESET}$	—	EU	I	L	H	H	—	Reset signal input.
22	—	—	—	I	—	—	—	—	
23	POWER ON/OFF	B	IU	O	HZ	H	L	—	Power ON/OFF shift output (L: Power ON).
24	MUTING	B	IU	O	HZ	H	H	—	Mute signal output (H: mute ON).
25	NC	B	IU	O	HZ	L	—	—	Connect to ground.
26	MUTE/STANDBY	B	IU	O	HZ	H	L	—	LED drive output for Mute/Standby indication.
27	TAPE2	B	IU	O	HZ	H	L	—	LED drive output for function indication.
28	TAPE1	B	IU	O	HZ	H	L	—	LED drive output for function indication.

Note:

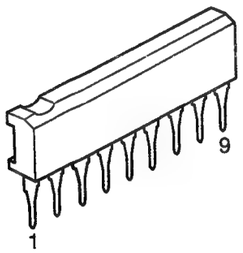
Typ (Type): B=NMOS open drain.
Opt (Option): IU=internal pull up, EU=external pull up.
Port state: Res=reset, Ini=standby, Act=active.
Det: Lv=level, Ed=edge, Alg=analog.
I/O: Port input / output for defined name (I: Input, O: Output).
Res: Show port state at reset (H: High level, L: Low level, HZ: High impedance).
Opt: ★U: Pull up, ★D: Pull down.
Det: Show operating condition of input port (Lv: Detect level, Ed: Detect edge).
Ini: Show input / output port initialization (H: High level, L: low level).
Act: Show port state at operating.

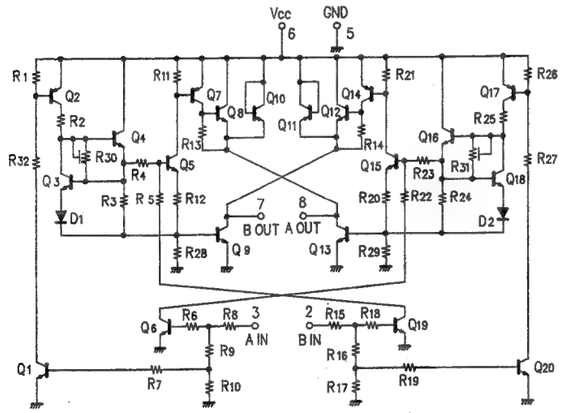
LC7821 (IC002)



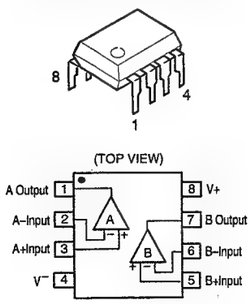


BA6208S (IC103)

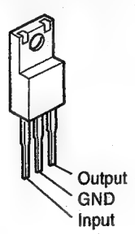




BA15218 (IC007)
NJM2068DDC (IC001, 201)

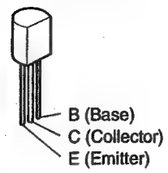


NJM7806FA (IC104)

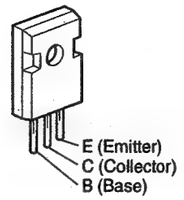


● TRANSISTORS

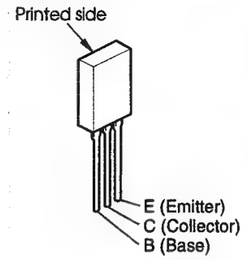
2SA988 (E/F)
2SC1815 (BL)
2SC1841 (E/F)



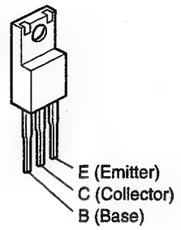
2SA1633 (E/F) (TR217,218)
2SC4278 (E/F) (TR215,216)



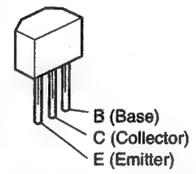
2SB1328 (P)
2SD2004 (P)



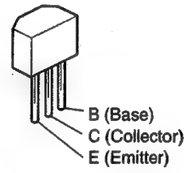
2SD1762 (E/F)

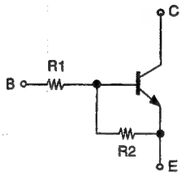


2SA933S (S)
2SC1740S (S), (E)



DTC114ES NPN
DTC143ZSA NPN

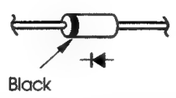




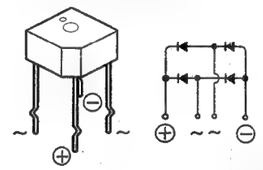
	R1	R2
DTC114ES	10kohm	10kohm
DTC143ZSA	4.7ohm	47ohm

● DIODES (including LED)

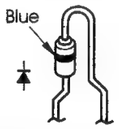
1SS252
1S2471



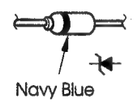
S4VB20 (D306)



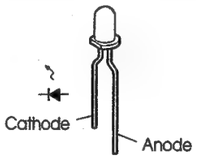
1SR35-200A



MTZ6.2A MTZJ18A
MTZJ3.3A MTZJ27A
MTZJ7.5C



SEL-1810A (Orange)
SEL-1210S (Red)

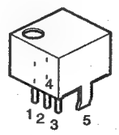


● POSISTOR

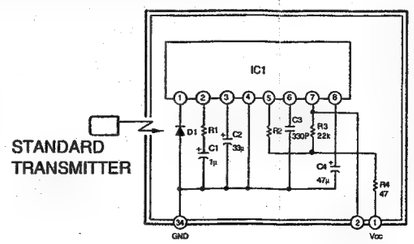
PTH9M04BB222TS2F333
(P401)

● OTHER

SBX1610-52 (Remote Control Receiver) (IC105)



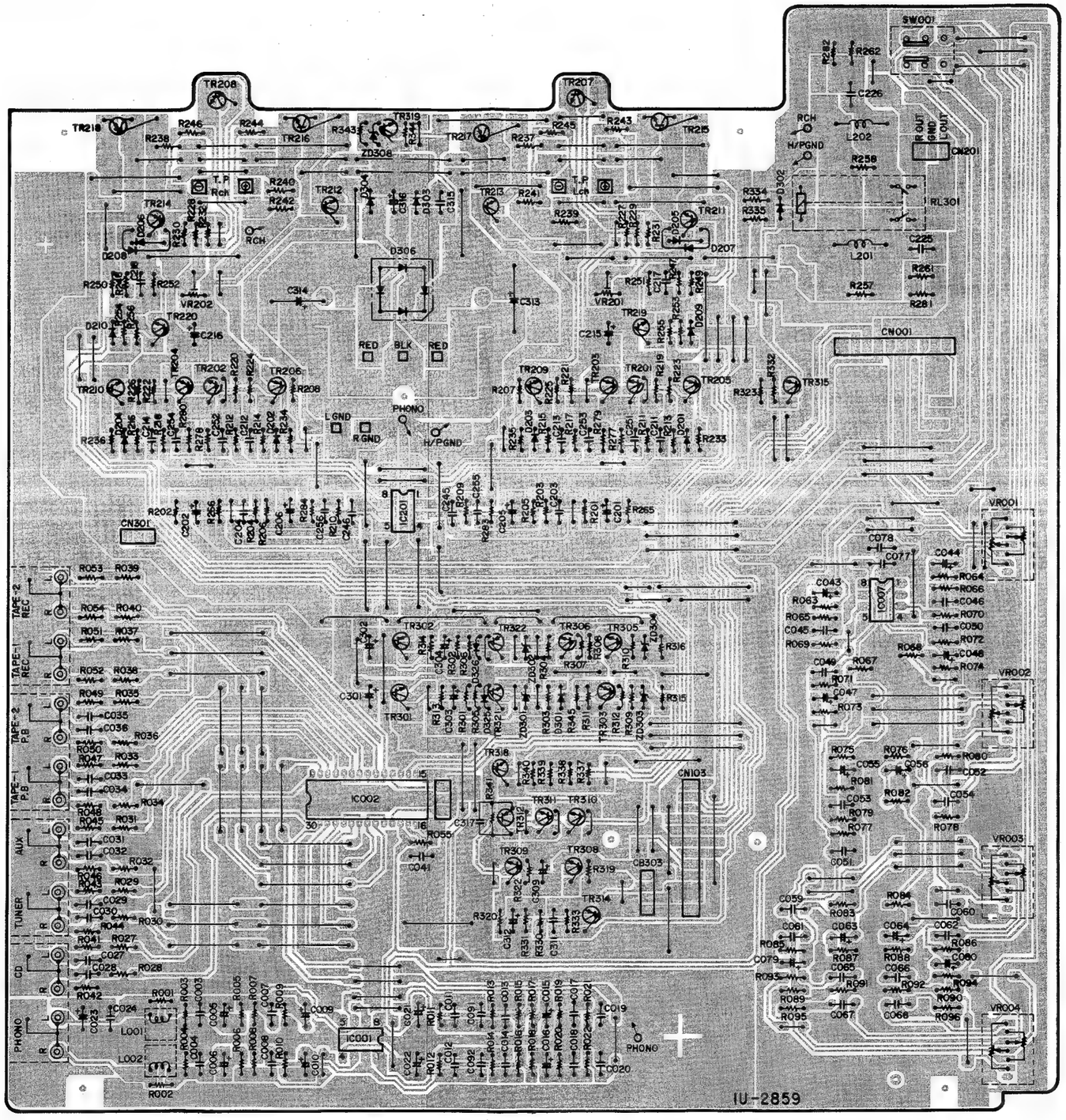
1. Vcc
2. Output
3. GND
4. Case Fin
5. Case Fin



IC1 : CX20106A Chip
D1 : PIN Photo Diode Chip
C1,C2,C4 : Aluminum Electrolytic Capacitor
C3 : SL Characteristic ±5%
R1 : Gain Adjuster
R2 : fo Adjuster ±1% USE
R3,4 : ±5%

PRINTED WIRING BOARD (Pattern Side)

1U-2859A MAIN UNIT ASS'Y

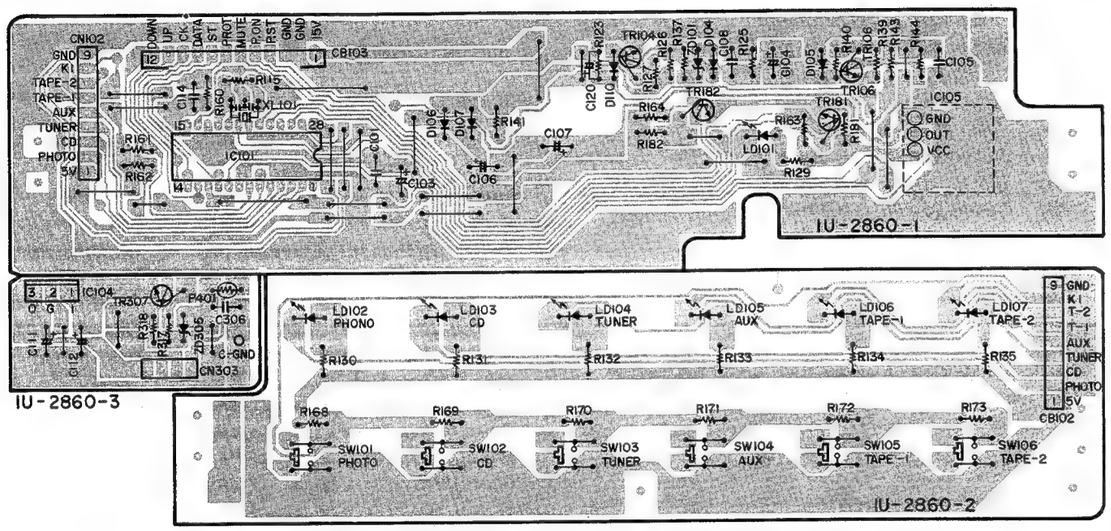


1 2 3 4 5 6 7 8

A B C D E

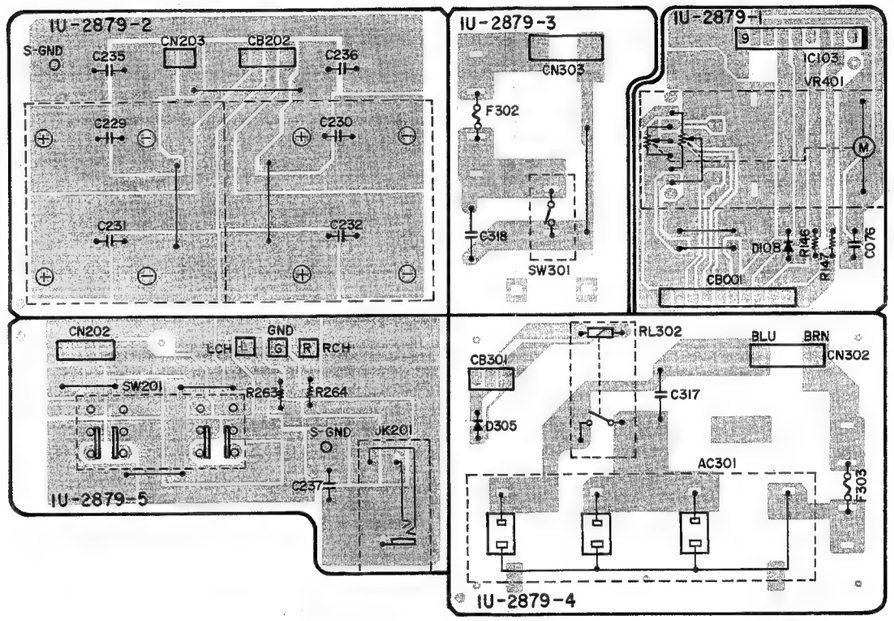
1U-2860A μ-COM UNIT ASS'Y

1U-2806A μ-Com Unit Ass'y	
1	μ-Com Unit
2	LED, Switch Unit
3	Regulator Unit



1U-2879A VOLUME UNIT ASS'Y

1U-2879 Volume Unit Ass'y	
1	Volume Unit
2	SP terminal Unit
3	Power Switch Unit
4	AC Outlet Unit
5	Head Phone, SP SW Unit



*

Version	Unit No.	F302	F303	F304	SP terminal	AC outlet
Black for Europe	1U-2879A	T1A/250V	T1A/250V	–	205 0952 009	203 3950 002
Gold for Europe	1U-2879A	T1A/250V	T1A/250V	–	205 0952 009	203 3950 002
U.S.A. & Canada	1U-2879D	5A/125V	8A/125V	–	2050952009	2033926007
U.K. & Australia	1U-2879E	T1A/250V	–	–	2050952009	–

NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "l" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol ⚠ ▩ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

*** Resistance**

1 8 2 ⇒ 1800 ohm = 1.8 kohm
Indicates number of zeros after effective number.
2-digit effective number.
• Units: ohm

1 R 2 ⇒ 1.2 ohm
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: ohm

● Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF ≈ : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

*** Capacity (electrolyte only)**

2 2 2 ⇒ 2200μF
Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 R 2 ⇒ 2.2μF
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: μF.

*** Capacity (except electrolyte)**

2 2 2 ⇒ 2200pF = 0.0022μF
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 2 1 ⇒ 220pF
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

PARTS LIST OF P.W.B. ASS'Y

1U-2859A MAIN UNIT ASS'Y

Ref.No.	Parts No.	Parts Name	Remarks
SEMICONDUCTORS GROUP			
IC001	263 0609 002	IC NJM2068DDC	
IC002	262 1227 008	IC LC7821	
IC007	263 0565 007	IC BA15218	
IC201	263 0609 002	IC NJM2068DDC	
TR201,202	273 0235 923	Transistor 2SC1841(E/F)	
TR203~206	271 0131 924	Transistor 2SA988(E/F)	
TR207,208	273 0198 918	Transistor 2SC1815(BL)	
TR209,210	273 0235 923	Transistor 2SC1841(E/F)	
TR211,212	274 0151 000	Transistor 2SD2004(P)	
TR213,214	272 0107 906	Transistor 2SB1328(P)	
TR219,220	273 0235 923	Transistor 2SC1841(E/F)	
TR301	274 0151 000	Transistor 2SD2004(P)	
TR302	272 0107 906	Transistor 2SB1328(P)	
TR303	271 0131 924	Transistor 2SA988(E/F)	
TR305	269 0160 002	Transistor DTC143ZSA	Built in resistor
TR306	273 0235 923	Transistor 2SC1841(E/F)	
TR308~311	273 0303 910	Transistor 2SC1740S(S)	
TR312	271 0192 905	Transistor 2SA933S(S)	
TR314	271 0131 924	Transistor 2SA988(E/F)	
TR315	273 0235 923	Transistor 2SC1841(E/F)	
TR318	269 0160 002	Transistor DTC143ZSA	Built in resistor
TR319	273 0303 910	Transistor 2SC1740S(S)	
TR321	273 0303 910	Transistor 2SC1740S(S)	
TR322	271 0192 905	Transistor 2SA933S(S)	
D201~204	276 0616 907	Diode 1SS252	
D205~208	276 0619 904	Diode 1S2471	
D209,210	276 0616 907	Diode 1SS252	
D301	276 0553 905	Diode 1SR35-200A	
D302	276 0616 907	Diode 1SS252	
D303,304	276 0553 905	Diode 1SR35-200A	
⚠D306	276 0305 001	Diode S4VB20	Bridge
D325,326	276 0616 907	Diode 1SS252	
ZD301,302	276 0637 902	Zener diode MTZJ6.2A	6.2V
ZD303,304	276 0645 949	Zener diode MTZJ27A	27V
ZD308	276 0635 904	Zener diode MTZJ7.5C	7.5V
RESISTORS GROUP			
⚠R213~216	241 2379 932	Carbon film 620 ohm 1/4 W(NB)	RD14B2E621JNBS
⚠R233~236	241 2377 989	Carbon film 150 ohm 1/4 W(NB)	RD14B2E151JNBS
⚠R237,238	244 2051 958	Metal oxide 220 ohm 1W	RS14B3A221JNBS(S)
⚠R239~242	244 2043 982	Metal oxide 0.22 ohm 1W	RS14B3AR22JNBS(S)
⚠R261,262	244 2043 937	Metal oxide 10 ohm 1W	RS14B3A100JNBS(S)
⚠R281,282	244 2043 937	Metal oxide 10 ohm 1W	RS14B3A100JNBS(S)

Ref.No.	Parts No.	Parts Name	Remarks
⚠R309,310	244 2051 958	Metal oxide 220 ohm 1W	RS14B3A221JNBS(S)
⚠R315,316	241 2387 940	Carbon film 4.7 ohm 1/4W(NB)	RD14B2E4R7JNBS
⚠R334	244 2052 915	Metal oxide 1.8 kohm 1W	RS14B3A182JNBS(S)
⚠R335	244 2050 988	Metal oxide 2 kohm 1W	RS14B3A202JNBS(S)
⚠R337,338	244 2052 902	Metal oxide 2.7 kohm 1W	RS14B3A272JNBS(S)
⚠R339,340	244 2051 932	Metal oxide 3.3 kohm 1W	RS14B3A332JNBS(S)
VR001	211 0798 103	Variable resister 100 kohm	Balance
VR002	211 0797 117	Variable resister 30 kohm	Bass
VR003	211 0797 133	Variable resister 10 kohm	Treble
VR004	211 0830 003	Variable resister 100 kohm	Loudness
VR201,202	211 6064 048	Semi fixed resister 5 kohm	V06PB502
CAPACITORS GROUP			
C003,004	253 1179 945	Ceramic cap. 220pF/50V	CK45B1H221K
C005,006	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C007,008	253 1179 903	Ceramic cap. 100pF/50V	CK45B1H101K
C009,010	254 4256 952	Electrolytic 220μF/25V	CE04W1E221M
C011,012	255 1265 978	Mylar film 0.022μF/50V	CQ93M1H223J(B)
C013,014	255 1265 907	Mylar film 0.0068μF/50V	CQ93M1H682J(B)
C015,016	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C017~020	253 1179 945	Ceramic cap. 220pF/50V	CK45B1H221K
C021~023	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C024	253 1181 904	Ceramic cap. 0.01μF/50V	CK45F1H103Z
C027~036	253 4537 982	Ceramic cap. 56pF/50V	CC45SL1H560J
C041	255 1265 936	Mylar film 0.01μF/50V	CQ93M1H103J(B)
C043,044	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C045,046	253 1179 903	Ceramic cap. 100pF/50V	CK45B1H101K
C047,048	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C049,050	253 1179 903	Ceramic cap. 100pF/50V	CK45B1H101K
C051,052	255 1264 940	Mylar film 0.0022μF/50V	CQ93M1H222J(B)
C053,054	256 1035 907	Metalized 0.18μF/50V	CF93A1H184J
C055,056	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C059,060	255 1265 949	Mylar film 0.012μF/50V	CQ93M1H123J(B)
C061,062	256 1034 940	Metalized 0.056μF/50V	CF93A1H563J
C063,064	254 4260 922	Electrolytic 0.33μF/50V	CE04W1HR33M
C065,066	253 1179 990	Ceramic cap. 560pF/50V	CK45B1H561K
C067,068	255 1265 978	Mylar film 0.022μF/50V	CQ93M1H223J(B)
C077,078	253 1181 904	Ceramic cap. 0.01μF/50V	CK45F1H103Z
C079,080	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C091,092	255 1264 940	Mylar film 0.0022μF/50V	CQ93M1H222J(B)
C201,202	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3M
C203,204	253 4538 907	Ceramic cap. 68pF/50V	CC45SL1H680J
C205,206	254 4256 936	Electrolytic 47μF/25V	CE04W1E470M
C211~214	253 4538 910	Ceramic cap. 75pF/50V	CC45SL1H750J
C215,216	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C217,218	255 1265 936	Mylar film 0.01μF/50V	CQ93M1H103J(B)
C225,226	256 1034 979	Metalized 0.1μF/50V	CF93A1H104J

Ref.No.	Parts No.	Parts Name	Remarks	
C245,246	253 4537 982	Ceramic cap. 56pF/50V	CC45SL1H560J	
C251~254	255 1264 982	Mylar film 0.0047μF/50V	CQ93M1H472J(B)	
C255,256	253 4537 924	Ceramic cap. 33pF/50V	CC45SL1H330J	
C301,302	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M	
C303,304	254 4260 980	Electrolytic 10μF/50V	CE04W1H100M	
C309	254 4250 945	Electrolytic 330μF/6.3V	CE04W0J331M	
C311	253 1181 904	Ceramic cap. 0.01μF/50V	CK45F1H103Z	
C312	254 4256 936	Electrolytic 47μF/25V	CE04W1E470M	
C313,314	254 6197 006	Electrolytic 8200μF/56V	CE68W==822MC(DL)	
C315	256 1042 903	Metalized 0.1μF/250V	CF93A2E104K	
C316	254 4263 916	Electrolytic 0.22μF/100V	CE04W2AR22M	
C317	253 9039 906	BC Ceramic cap. 0.1μF/25V	CK45=1E104Z	
OTHER GROUP				**Q'ty**
	–	(P.W.board)		(1)
L001,002	235 9003 002	FTZ choke coil		2
L201,202	235 0104 007	Inductor 1 μH		2
SW001	212 9520 003	1 p push switch	S.Direct	1
RL301	214 0129 001	Relay(DH2TU)		1
	204 8497 000	4 p pin jack(GND)(K)		4
CN001	205 0666 007	10 p conn. base(9130)		1
	205 0233 045	4 p EH Connector Base		1
	203 5114 008	3 p SCN-SCN Connector Cord		1
	203 5115 007	3 p SCN Connector Cord		1
	205 0233 032	3 p EH Connector Base		1
	203 0632 022	1 p SIN Cord Ass'y		1
	203 0632 006	1 p SIN Cord Ass'y		1
	203 0632 019	1 p SIN Cord Ass'y		1
	205 0275 029	12 p EH Connector Base		1
	EP- 5667 H2	Terminal	L=20	10
	415 0309 071	PVC tube (L=10)	for TR207,208	4

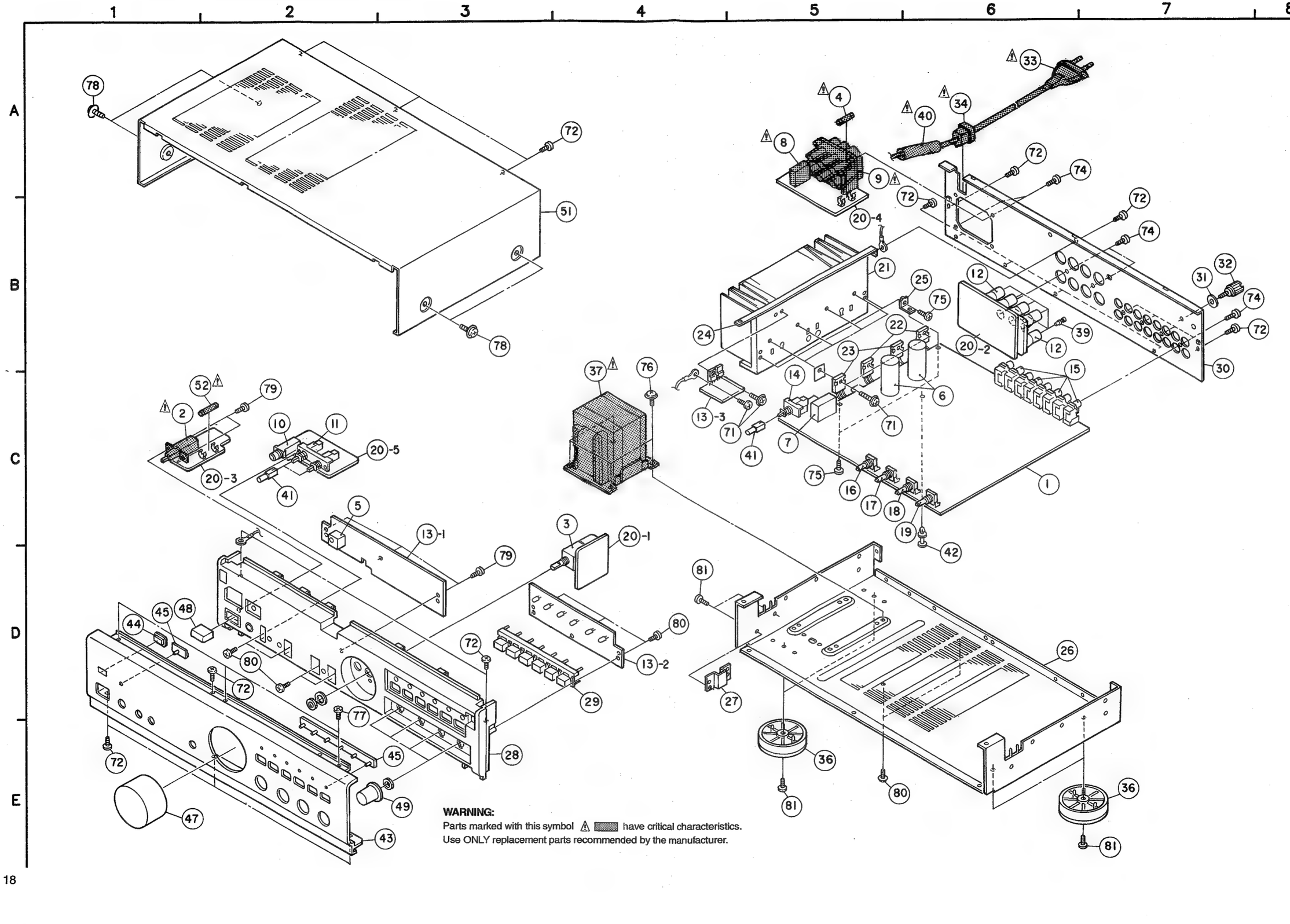
1U-2860A μ-COM UNIT ASS'Y

Ref.No.	Parts No.	Parts Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 2168 001	IC HD404222	μ-com
IC104	263 0793 002	IC NJM7806FA(S)	Regulator +6V
IC105	499 0150 008	IC SBX1610-52	Remocon sensor
TR104	269 0020 906	Transistor DTC114ES	Built in resistor
TR106	273 0388 906	Transistor 2SC1740S(E)	
TR181,182	269 0160 002	Transistor DTC143ZSA	Built in resistor
TR307	274 0120 002	Transistor 2SD1762(E/F)	
D104,105	276 0616 907	Diode 1SS252	
D106,107	276 0553 905	Diode 1SR35-200A	
D110	276 0616 907	Diode 1SS252	
ZD101	276 0634 905	Zener diode MTZJ3.3A	3.3V
ZD305	276 0645 907	Zener diode MTZJ18A	18V
LD101	393 9453 903	LED SEL1810A	Orange
LD102~107	393 9434 906	LED SEL1210S	Red
P401	279 0034 067	Posistor PTH9M04BB222TS2F333	
RESISTORS GROUP			
⚠R141	241 2387 940	Carbon Film 4.7 ohm 1/4 W(NB)	RD14B2E4R7JNBS
CAPACITORS GROUP			
C101	253 1181 904	Ceramic cap. 0.01μF/50V	CK45F1H103Z
C103	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101M
C104	254 4260 058	Electrolytic 2.2μF/50V	CE04W1H2R2H
C105	256 1034 982	Metalized 0.12μF/50V	CF93A1H124J
C106	254 4250 932	Electrolytic 220μF/6.3V	CE04W0J221M
C107	254 4250 084	Electrolytic 3300μF/6.3V	CE04W0J332M
C108	255 1265 936	Mylar Film 0.01μF/50V	CQ93M1H103J(B)
C111,112	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C114	253 9039 906	BC Ceramic cap. 0.1μF/25V	CK45=1E104Z
C120	254 4260 919	Electrolytic 0.22μF/50V	CE04W1HR22M
C306	253 1181 904	Ceramic cap. 0.01μF/50V	CK45F1H103Z
OTHER GROUP			**Q'ty**
	–	(P.W.board)	(1)
SW101~106	212 4789 001	Tact switch(kyung)	6
XL101	399 0191 903	Ceramic resonator CST4.00MGW-TF01	1
	415 0309 026	PVC tube (L=20) for P401	2
	205 0233 090	9 p EH Conector Base	1
	205 0275 029	12 p EH Conector Base	1
	204 2747 002	9 p EH-SCN Connector Cord	1
	203 6475 005	4 p EH-SCN Connector Cord	1
	203 0633 018	1 p Contact Ass'y	1

1U-2879 VOLUME UNIT ASS'Y

Ref.No.	Parts No.	Parts Name	Remarks
SEMICONDUCTORS GROUP			
IC103	263 0927 001	IC BA6208S	
D108	276 0616 907	Diode 1SS252	
D305	276 0616 907	Diode 1SS252	
RESISTORS GROUP			
⚠R263,264	244 2052 931	Metal oxide 390 ohm 1W	RS14B3A391JNBS(S)
VR401	211 0857 002	Variable resister 100 kohm	Main
CAPACITORS GROUP			
C076	253 1181 904	Ceramic cap. 0.01μF/50V	CK45F1H103Z
C229~232	255 1264 982	Mylar film 0.0047μF/50V	CQ93M1H472J(B)
C235,236	253 1181 904	Ceramic cap. 0.01μF/50V	CK45F1H103Z
C237	253 9039 906	BC Ceramic cap. 0.1μF/25V	CK45=1E104Z
⚠C317,318	256 8003 713	Ceramic cap. 4700pF/400V	CK45E2GAC472MC
OTHER GROUP			**Q'ty**
	–	(P.W.board)	(1)
SW201	212 4778 009	2 p push switch	Speaker 1
⚠SW301	212 1030 009	Power switch (TV-5)	Power 1
⚠RL302	214 0142 004	Relay(TV-5)	1
⚠F302	206 1015 058	Fuse 1.6A	1
⚠F303	206 1015 029	Fuse 1 A T	1
	202 0022 008	Fuse Holder	4
	204 8503 004	:Headphone jack(K)	1
	205 0952 009	4 p sp terminal	2
⚠	203 3950 002	3 p AC outlet	1
CB001	205 0667 006	10 p conn. base-L(9130)	1
CN302,303	205 0692 000	2 p wrapping terminal	2
	EP-5667 H2	Terminal L=20	3
	415 0299 000	Capacitor Cover for C317, 318	2
	203 0633 005	1 p Contact Ass'y	2
	203 2375 002	2 p SCN Conn, Cord	1
	203 6476 004	4 p SCH-SCH Conn, Cord	1
	203 5116 006	3 p EH-SCN Conn, Cord	1

EXPLODED VIEW OF CHASSIS AND CABINET



WARNING:
Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

PARTS LIST OF EXPLODED VIEW

	Ref.No.	Parts No.	Parts Name	Remarks	Q'ty
◉	1	1U- 2859 A	Main unit Ass'y		1s
⚠	2	212 1030 009	Power switch (TV-5)		1
	3	211 0857 002	Variable resistor 100 kohm	Main VR401	1
⚠	4	206 1015 029	Fuse 1 A T	F303	1
	5	499 0150 008	Remocon sensor SBX1610-52	IC105	1
	6	254 6197 006	Chemicon 8200μF/56 V	C313,314	2
	7	214 0129 001	Relay (DH2TU)	RL301	1
⚠	8	214 0142 004	Relay (TV-5)	RL302	1
⚠	9	203 3950 002	3p AC outlet		1
	10	204 8503 004	:Headphone jack		1
	11	212 4778 009	2p push switch	Speaker SW201	1
	12	205 0952 009	4p speaker terminal		2
◉	13	1U- 2860 A	μ-com unit Ass'y		1s
	13-1	–	μ-com unit		(1)
	13-2	–	LED & switch unit		(1)
	13-3	–	Regulator unit		(1)
	14	212 9520 003	1p push switch	S.Direct SW001	1
	15	204 8497 000	4p pin jack(GND)(K)		4
	16	211 0798 103	Variable resistor 100 kohm	Balance VR001	1
	17	211 0797 117	Variable resistor 30 kohm	Bass VR002	1
	18	211 0797 133	Variable resistor 10 kohm	Treble VR003	1
	19	211 0830 003	Variable resistor 100 kohm	Loudness VR004	1
◉	20	1U-2879	Volume unit Ass'y		1s
	20-1	–	Volume unit		(1)
	20-2	–	SP terminal unit		(1)
	20-3	–	Power switch unit		(1)
	20-4	–	AC outlet unit		(1)
	20-5	–	Headphone,sp sw unit		(1)
	21	417 0519 003	:*Power radiator		1
	22	271 0283 005	Transistor 2SA1633 (E/F)	TR217,218	2
	23	273 0443 003	Transistor 2SC4278 (E/F)	TR215,216	2
	24	412 3999 007	:*Radiator bracket		1
	25	412 4000 005	:*P.W.B. bracket(A)		2
	26	411 0941 505	:*Chassis		1
◉	27	412 4001 004	:*Side bracket		1
◉	28	146 1572 105	:*Inner panel	Black model	1
		146 1572 118	:*Inner panel	Gold model	1
	29	113 1739 003	:*Function button	Black model	1
		113 1739 016	:*Function button	Gold model	1
◉	30	105 1169 203	:*Rear panel		1
	31	477 0018 001	Washer (P-87)		1
	32	205 0071 016	Terminal Ass'y	GND	1
⚠	33	206 2063 009	AC cord with plug		1
⚠	34	445 0056 006	Cord bush		1
★	35	513 1144 005	Masking sheet		1
	36	104 0282 007	:*Foot Ass'y		4
⚠	37	233 6173 007	Power trans		1
★	38	475 1175 002	:Washer		1
	39	477 0096 007	Push rivet		8
⚠	40	415 0364 032	U L tube (φ8.3)	for AC cord	1
	41	113 1745 107	:*Push button (Round)	Black model	3
		113 1745 110	:*Push button (Round)	Gold model	3
◉	42	412 1979 029	P.C.B. holder		1
	43	144 2456 101	:Front panel	Black model	1
		144 2456 114	:*Front panel	Gold model	1
	44	143 9181 007	:*Remocon window		1
	45	143 0945 006	:*Lens		1
★	46	445 8004 007	Wire clamper		10
	47	112 0761 008	:*VR knob	Black model	1
		112 0761 011	:*VR knob	Gold model	1
	48	113 1738 101	:*Power button	Black model	1
		113 1738 114	:*Power button	Gold model	1
	49	112 0762 007	:*Knob(Round)	Black model	4
		112 0762 010	:*Knob(Round)	Gold model	4
★	50	412 2814 015	Card spacer (L=14)		2
	51	102 0567 001	:*Top cover	Black model	1
		102 0567 014	:*Top cover	Gold model	1
⚠	52	206 1015 058	Fuse 1.6A	F302	1
★	53	513 2433 003	Serial No. Sheet		1
	54				
	55				

SCREWS

71	473 8007 009	Cup screw 3×12		7
72	473 7015 018	Tapping screw(S)3×8 Black		14
73	–	–		
74	477 0064 107	Fixing screw		10
75	473 7002 018	Tapping screw(S)3×8		8
76	473 7004 016	Tapping screw(S)4×6		6
77	473 7508 017	Tapping screw(P)3×10 Black		3
78	477 0263 005	3 P Swelling screw	Black model	4
	477 0263 018	3 P Swelling screw	Gold model	4
79	473 7508 004	Tapping screw(P)3×6 Black		2
80	473 7500 044	Tapping screw(P)3×8 Black		12
81	473 7002 034	Tapping screw(S)3×6 Black		7
82				

PACKING & ACCESORIES (Not included EXPLODED VIEW.)

101	GEN 3213	Envelope sub. Ass'y		1s
101-1	505 8006 019	Envelope		(1)
101-2	511 2774 009	:*Inst. manual	E,G,F,I,ES,NL,S,PO	(1)
101-3	499 0277 004	Remote control	RC-176	(1)
101-4	–	Batteries		(2)
102	505 8092 010	Laminate envelope		1
103	503 1191 103	:*Cushion		2
104	501 1889 008	:*Carton case		1
105	513 9111 001	Color label (Gold)	Gold model only	2
106				

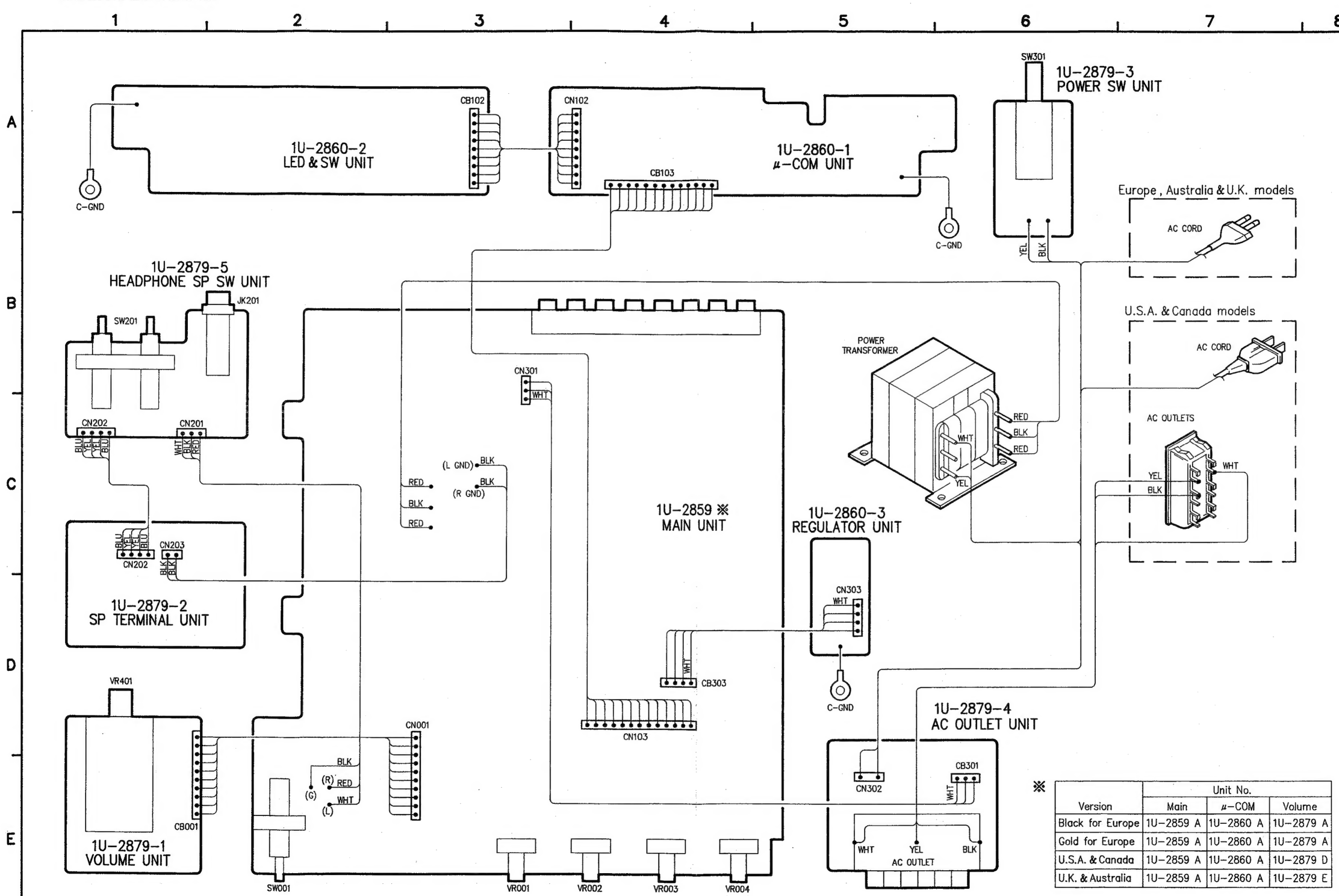
NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

WIRING DIAGRAM



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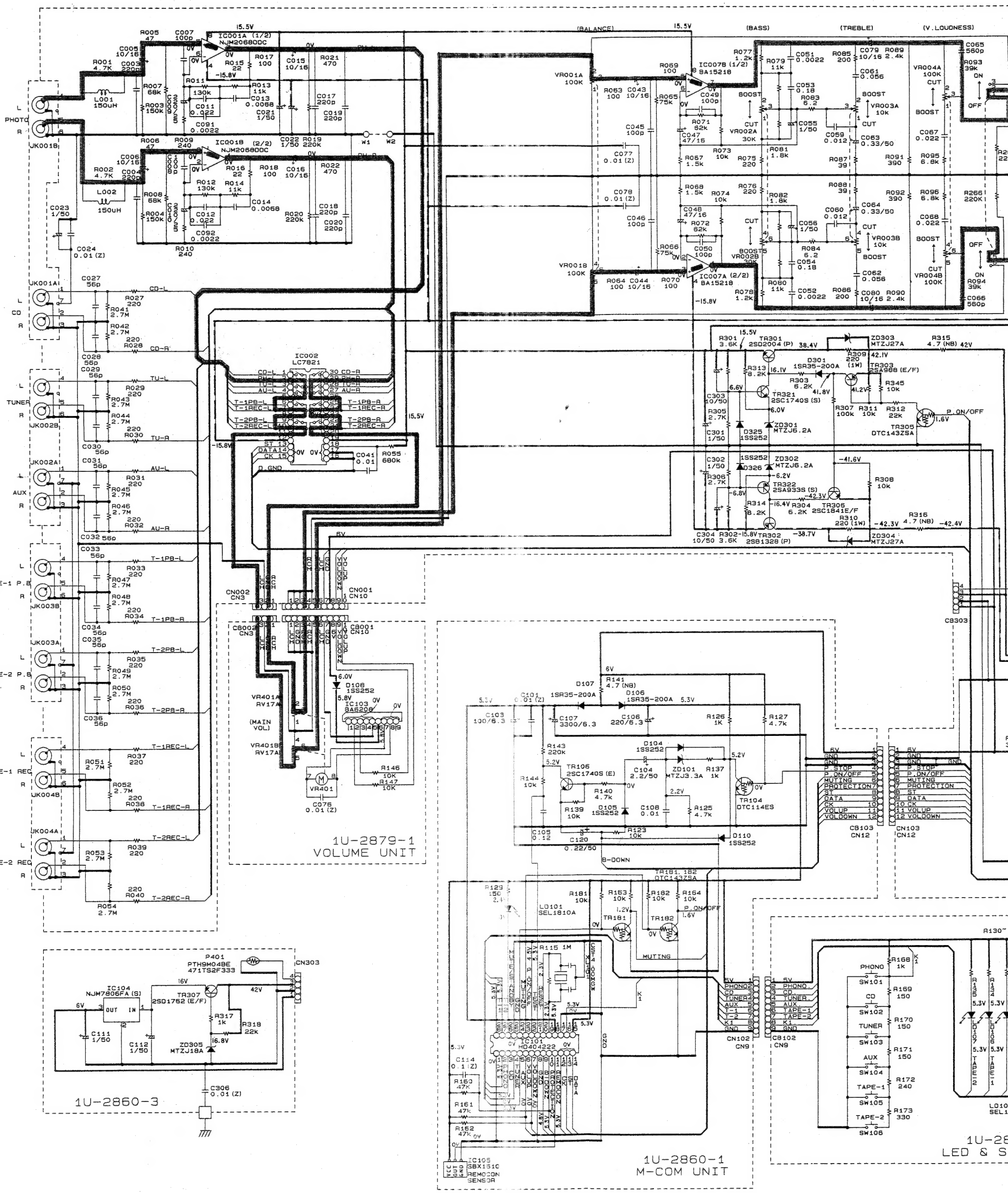
Version	Unit No.		
	Main	μ-COM	Volume
Black for Europe	1U-2859 A	1U-2860 A	1U-2879 A
Gold for Europe	1U-2859 A	1U-2860 A	1U-2879 A
U.S.A. & Canada	1U-2859 A	1U-2860 A	1U-2879 D
U.K. & Australia	1U-2859 A	1U-2860 A	1U-2879 E

SCHEMATIC DIAGRAM

1 2 3 4 5 6

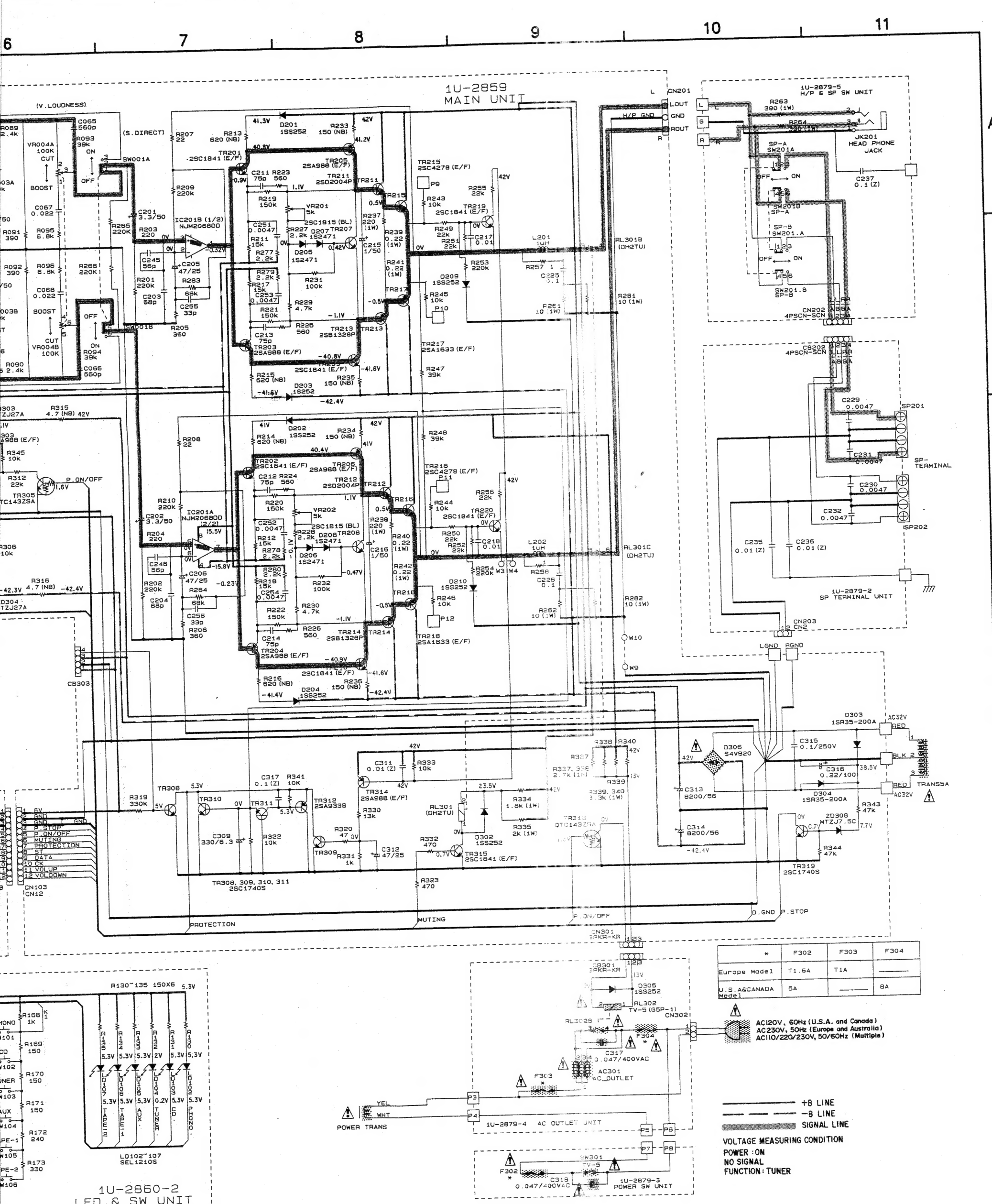


WARNING:
Parts marked with this symbol Δ
Use ONLY replacement parts recomm

CAUTION:
Before returning the unit to the custon
current exceeds 0.5 milliamps, or if th

WARNING:
DO NOT return the unit to the custom

REMARKS:
Current and Parts are subject to chan



*	F302	F303	F304
Europe Model	T1.6A	T1A	———
U.S.A&CANADA Model	5A	———	8A

WARNING:
Parts marked with this symbol Δ ▩ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

REMARKS:
Current and Parts are subject to change without prior notice.

NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.